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FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

Vol. 92, No. 11 NOVEMBER, 1939 Member A.B.C.-A.B.P.

Will This Be a Common Sight When Shipments of War Munitions Start? Fire Departments Must Be Kept Up to Full Strength!

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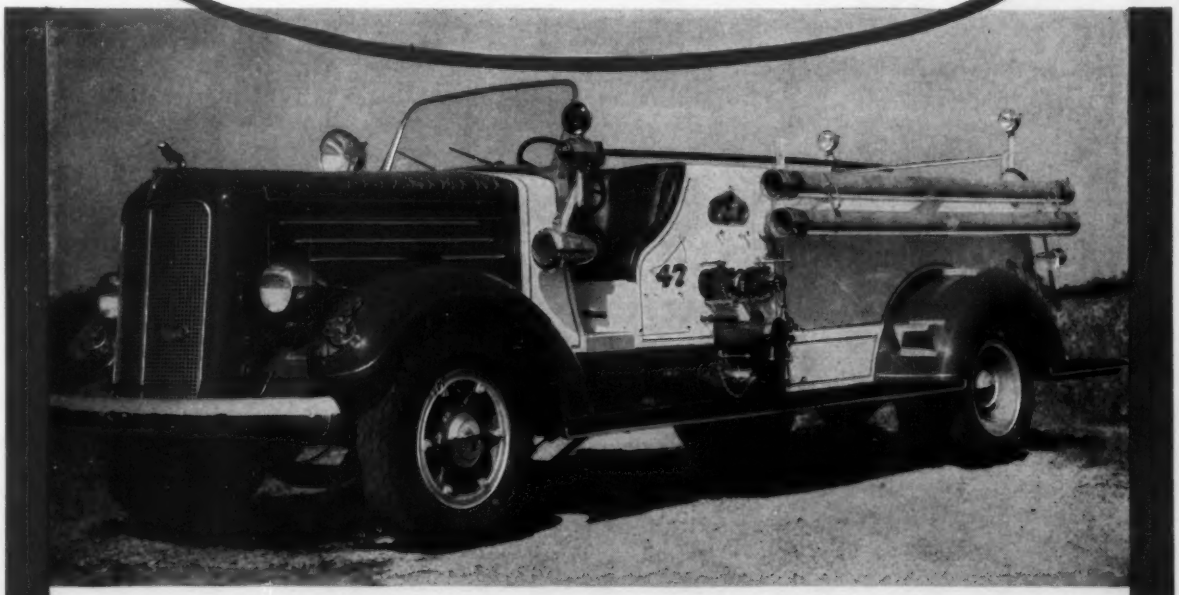

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THE FIRE ENGINEER and
FIRE PROTECTION

FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

FRED SHEPPERD
Editor

N. N. WOLPERT, Assistant Editor.

For Manufacturers!

IT'S not turkey dinners we are handing out this November (whatever the date the President has set for Thanksgiving), but *ideas*.

- FIRE ENGINEERING is full of ideas for the careful readers—that is its purpose and function. We know that our subscribers value it highly for what it gives them.
- But it is particularly for the manufacturers that we have an idea to pass along on this page today. It is just this:
- Your only salesman that *creates new prospects in large numbers* is your advertising.
- Think that one over—and remember that for reaching the fire field this publication can tell your sales story to practically *all* of your logical customers at minimum cost — without waste.
- Happy Thanksgiving to all our readers—you are all one family!

The Publishers

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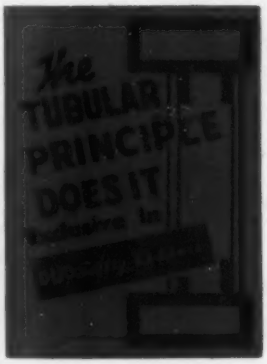

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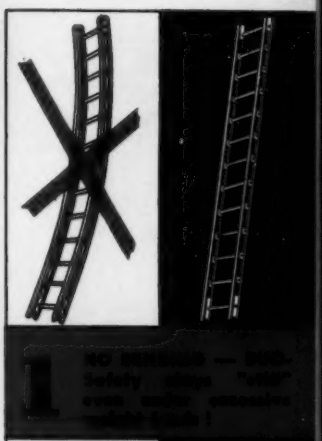

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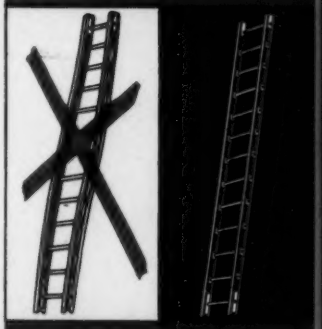

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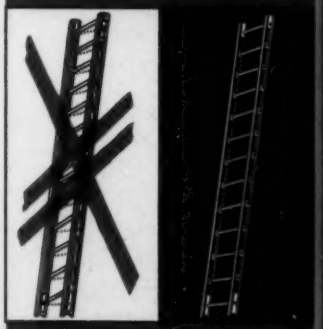

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Yours truly,

CHARLES S. NEER, M.D.
Baltimore, Md.
October 22, 1939

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One night fire broke out and, because of a DELAYED ALARM, the fire had reached great headway before the apparatus arrived. The buildings, though not completely destroyed, had to be rebuilt. But there was the insurance! This and plenty more was absorbed by rebuilding costs, insurance deduction of 20% because of depreciation, payment of bank notes due about the time the fire occurred, continuance of non-cancellable advertising contracts and the payment of salaries to high-power executives went on . . . in the meantime other employes were out of jobs. It required 178 days to rebuild and competitors got the company's business.

This is one of few instances where a fire-blasted building was rebuilt for, out of every 100 plants destroyed by fire, 43 do not resume business.

Such fire losses can be reduced simply by placing plenty of fire alarm boxes accessibly and *visibly* mounted.

Check up on conditions in your community.

Three-Fold Fire Alarm Box Accessibly and Visibly Mounted on a Type U1000-6 Pedestal

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FIRE ENGINEERING

The Journal of the Fire Protection Profession

Volume 92 NOVEMBER, 1939 No. 11

With the Editor

Time for Preparedness The repeal of the arms embargo by Congress means but one thing; manufacture and sale to France and England of war munitions on a huge scale. And there's hardly a city in this country that will not have one or more plants engaged directly or indirectly in the production of war supplies of some sort.

Germany and Russia, because of Great Britain's control of the seas, can neither get war materials from us nor can they prevent the Allies from doing so.

The former have then but one means of minimizing our help to the Allies, namely, stopping the production of such materials in this country.

As the war becomes more bitter, and it seems headed that way just now, and as Germany and Russia begin to feel a dearth of war munitions, it is logical to expect that they will, through their agents and sympathizers in this country, enter upon sabotage on a large scale. And arson will be their most effective weapon.

Thus a tremendous increase in responsibility will be placed on the fire service.

Not only will Fire Departments be expected to increase the intensity of their inspections, but they must also be alert to cope with fires of a magnitude not commonly encountered during peace time.

Preparedness for major fires in munition plants is vital. Faced with this huge task, Fire Departments today must be kept up to full strength. It is no time to permit reduction in personnel or apparatus. Furthermore, many departments are in no fit condition to handle a major conflagration in a war industries plant.

Those Fire Departments which have had to get by with a minimum of serviceable apparatus have now a real claim for new equipment.

If the fire service is to perform in the manner expected of it, not only its personnel, but its apparatus as well, must be brought up to, and maintained at, full strength.

Fred Shepperd

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The Proper Control and Best Methods of Venting

Dust Explosions in Industrial Plants

By HYLTON R. BROWN
Senior Engineer, Chemical Engineering Research Division,
Bureau of Chemistry and Soils, U. S. Dept. of Agriculture,
Washington, D. C.

WITH very few exceptions, any dust which will burn or oxidize readily and is fine enough and dry enough to form a cloud in air will explode, if the concentration is within certain limits and there is present a source of ignition sufficiently hot to ignite it.

Starch, grain dust, wood dust, powdered sugar, cork dust, soap powder, rosin dust, coal dust, sulphur and aluminum powder are representative types of the dusts which have been found to be explosive. For the more explosive dusts a concentration of .02 to .04 of an ounce per cubic foot of air forms an explosive mixture and a temperature of 540° C. is sufficient to ignite it.

Tests Determine Pressure by Dust Explosions

Tests to determine the pressure produced by dust explosions have been made with many different dusts in the laboratories of the Chemical Engineering Research Division of the Bureau of Chemistry and Soils in the U. S. Department of Agriculture. The maximum pressure, average rate of pressure rise and the maximum rate of pressure rise for 133 of these dusts at different concentrations have been reported by Paul W. Edwards and L. R. Leinbach in U. S. Department of Agricultural Technical Bulletin No. 490.

In large scale tests pressures of over 100 pounds per square inch were recorded and reports have been received indicating that pressures of over 200 pounds per square inch were measured during tests made in Europe. Observations made at industrial plants in this country following dust explosions have indicated that it is impractical to build walls strong enough to withstand the pressures produced. In one case a 16-inch reinforced concrete wall was blown out by the explosion and in a grain elevator explosion a section of the concrete storage tanks with their contents, estimated to weigh more than 100,000 tons, was lifted at least a foot and moved sidewise on its foundation about eight inches.

Heavy Losses from Dust Explosions

The dust explosion hazard exists in thousands of the industrial plants of the country and each year explosions in these plants cause heavy life and property losses. More than 300 persons have been killed and more than $35,000,000 worth of property has been destroyed in dust explosions in this country, during the last 20 years. The plants in which these explosions occur are not always old and poorly operated. In fact most of the recent losses have occurred in what would be considered modern, well equipped and efficiently operated industrial establishments. The hazard must be recognized and protective measures adopted to reduce or prevent such losses.

Of course explosion prevention should be our first thought. We have learned to build fire resistive buildings and give much attention to fire prevention. The same procedure should be followed in combatting the dust explosion hazard. Knowing the requisites of a dust explosion—a dust cloud and source of ignition—all possible precautions should be taken to prevent the formation of dust clouds and to eliminate possible sources of ignition.

Cleanliness has always been and continues to be the best and easiest precaution to take in providing dust

Explosion and Resulting Fire in a Corn Products Plant
In this disaster four persons were injured and property damage of $225,000 was done.

explosion protection. Considerable progress has been made in developing effective dust collecting equipment and the use of such equipment wherever practical provides protection for many processes in many different types of plants.

To some extent it is also possible to eliminate sources of ignition. Explosion-proof electrical equipment is now available and can be used to eliminate the electric spark or arc as a possible ignition source. Nonsparking tools and machine parts are obtainable and their use will greatly reduce the possibility of a dust ignition by metallic sparks. It may be interesting to note that at the U. S. Department of Agriculture Dust Explosion Testing Station at Arlington, Va., both sulphur dust clouds and aluminum dust clouds have been ignited by sparks from a piece of steel held against an emery wheel. Static electricity can be eliminated as a possible source of ignition by proper grounding of belts and moving parts of machinery.

Inert Gas to Prevent Ignition

The foregoing suggestions may provide sufficient protection where the dust produced is a by-product and can be collected and removed and the sources of ignition are recognized. In plants where the dust or powdered material is the product being manufactured, other precautions are necessary. In such cases it becomes particularly important to guard against ignition of the product during processing.

The use of inert gas, such as carbon dioxide or nitrogen, has been found very effective for both fire and explosion prevention, where it can be used to reduce the oxygen content of the atmosphere within the grinding, bolting or conveying equipment in which the material is being processed. The oxygen reduction necessary varies for different dusts, but tests have shown that for nearly all of the cereal dusts, now generally recognized as explosive, it is impossible to produce an explosion or propagate flame when the oxygen content of the air in which the dust is suspended has been reduced from the normal 21 per cent to 12 per cent. A reduction of 8.5 per cent is necessary to prevent explosions of sulphur dust and it may be necessary to go still lower with other materials.

In addition to all the safeguards previously mentioned, it has been considered desirable in many cases to give consideration to the construction and location of the buildings. This is particularly true in industrial plants, where dust clouds or sources of ignition may occur through mechanical failures, or conditions beyond the control of the operator.

With the knowledge now available concerning dust explosion pressure, it seems wise to recognize the futility of attempting to build strong enough to withstand the pressure, and to call attention to construction features which will help prevent explosions or provide vents if one should occur.

It is seldom practical to separate the type of plant in which the dust explosion hazard exists into widely scattered or segregated units, like a powder or explosive manufacturing establishment. It is possible, however, in many cases to divide a building into sections, with unpierced fire walls and thus prevent an explosion in one section from propagating to another.

Room, Gallery and Tower for Testing

The desirability of releasing explosion pressure in the early stages was recognized some time ago, and a room, gallery and tower were erected at the Arlington, Va., Dust Explosion Testing Station of the U. S. Department of Agriculture, expressly for the purpose of determining the relationship between venting area, explosion pressure and the extent of flame propagation.

The Room, 4 x 5 x 5 feet, has a volume of 100 cubic feet. The Gallery, 2½ x 2½ x 20 feet, has a volume of 125 cubic feet. The Tower, 3 x 3 x 18 feet, has a volume of 162 cubic feet. Total volume of the structure is 387 cubic feet.

Vents on the room consist of hinged metal doors and window sash. The metal doors range in size from 0.1 square feet to 1.55 square feet and the sash contain approximately three square feet of glass.

The gallery has eight roof vents, each 1 square foot in area covered by hinged doors. There are also eight fixed glass windows with an area of 1.3 square feet each. The opening into the Tower, which is the full size of the gallery, may be closed when the gallery is used as a unit.

Swinging Panel in Tower

The tower contains one swinging panel about seven square feet in area, five hinged doors, each 1.55 square feet in area, adjustable vents on top ranging from 0.1 square feet to full cross sectional area of nine square feet, and six fixed glass windows with an area of 1.7 square feet each.

A series of tests were made at the station to determine, (1) the ratio of venting area to room or building volume to provide safe venting of explosions, (2) suitable types of venting equipment, and (3) the most effective location of vents.

Required Venting Areas

The first step in determining the area required for the venting of dust explosions was to select a pressure at which it was believed structural damage would not occur. This, of course, depends upon the type of building to be vented, but for the heavy reinforced concrete type of structure generally used to house the dust-producing industries, it is believed that sufficient venting area should be provided to prevent explosion pressure from exceeding 300 pounds per square foot.

The results obtained in a series of 66 explosions indicated that it is necessary to provide one square foot of venting area for each 80 cubic feet of volume, in order to release at less than 300 pounds per square foot pressure an explosion of grain dust in a cube-shaped or approximately square room.

Suggested Venting Area

In a series of 58 explosions it was found that approximately three square feet of venting area should be provided for each 100 cubic feet of of volume, to safely vent an explosion of starch dust in a cube-shaped or approximately square room.

No extensive series of tests were made with other dusts, but enough information was obtained to indicate the pressures produced in comparison with starch and grain dust. The results obtained with sugar, wood flour, sulphur, cork, powdered milk, soap powder, wood charcoal and similar products indicated that the venting area required for these dusts ranges between the requirements for grain dust and starch.

Experiments with Fixed Glass Vents

In some cases a lightly placed roof and large free-swinging doors may be considered as vents, but as a rule windows represent the venting area which can be conveniently used for explosion pressure release. Accordingly, tests were made to determine the breaking strength of glass in the sizes and types generally used in industrial plants and generally accepted as explosion vents. The accompany-

ing table gives the results of these tests:

Dust Explosion Pressure Necessary to Break Glass

Type of Glass	Size of Pane 10x14 inches lbs./sq. ft.	12x18 inches lbs./sq. ft.	14x20 inches lbs./sq. ft.	16x24 inches lbs./sq. ft.
Picture Glass	...	513	368	...
Single Strength, A Quality	...	470	392	...
Double Strength A Quality	900	637	510	419
⅛" Ribbed	...	270	169	...
3/16" Ribbed	...	655	387	...
¼" Ribbed	...	Unbroken at 1000	501	...
¼" Wired	Shattered at widely varying pressures			

It was a surprise to all of the engineers engaged in this work to find that double strength A quality window glass of the size ordinarily used in factory windows was capable of withstanding such high dust explosion pressure. Undoubtedly too much dependence has been placed on fixed glass as a means of venting dust explosions in industrial plants, because the results given in the table clearly show that such glass cannot be depended upon to release pressures below the point at which structural damage will occur, except perhaps where the ⅛-inch ribbed glass is used.

The 637 pounds per square foot reading for the 12 x 18-inch double strength glass, a size generally used in factories, means that, under such conditions, a wall, ceiling or floor 10 x 10 feet would be subjected to a pressure of more than 30 tons. It is quite likely that in such cases the entire window frame would be blown out of its setting at a pressure lower than that indicated as the breaking pressure of the glass, but that is another phase of the venting problem.

Scored Glass Vents Break at Lower Pressure

The comparatively low pressure at which the ⅛-inch ribbed glass broke in the tests described led to another series of tests to determine the effect of scoring fixed glass in window frames to reduce its breaking pressure and thus increase its effectiveness as an explosion vent. It was noted that this particular type of glass broke at a much lower pressure, when the panes were installed in the explosion chamber with the ribs on the outside, than when they were placed with the ribs on the inside.

Similar results were noticed when plain glass panes were scratched with a glass cutter. The best results were obtained with a diagonal or X scoring, with the scratches starting about two inches from the corners and with a two-inch gap in the center. The two-inch space at the corners and the two-inch gap in the center prevents cracks from starting along the scratches when such scoring is used on glass in factories where heavy vibration occurs. The tests also showed that scoring with a diamond cutter was more effective than scoring with a steel wheel. The following table shows the reduction in the breaking pressure of plain glass which can be accomplished by scoring:

Comparison of Dust-Explosion Pressures Necessary to Break Unscored and Scored Glass

(Pressure in lbs. per sq. ft.)

	Size of Pane 12x18 in.	14x20 in.
Double-strength A quality		
Unscored	637	510
Scored with steel wheel	119	120
Scored with diamond cutter	78	85

The figures in the above table are based on a limited number of tests and one or two of the results are not in line with expected trend. The series of tests is being continued and later results may be somewhat different. The table shows, however, that it is possible, by scoring fixed glass, to reduce its breaking strength to the point where it can be used to vent dust explosions and prevent the building up of destructively high pressure. It is interesting to note that scoring the outside of fixed glass as recommended greatly weakens the glass against pressure from within without materially lowering its resistance to wind pressure from without.

Advantages of Movable Vents

Following the series of tests to determine the breaking pressure of plain and scored glass, an opportunity was presented to compare the merits of the various types of swinging or movable vents. All of these venting devices have particular advantages, depending upon the type of structure in which they are used, the cost, and the frequency and severity of the explosions in which they may operate. The outstanding result of the tests was the great advantage which all of the vents tested had over fixed glass, in providing quick release at low pressures. Many of these devices, which consist of hinged free swinging or counter balanced panels, or window sash, can be set to operate at pressures of less than five pounds per square foot.

It is not feasible in many cases, where fixed glass is now installed, to replace the present sash with venting frames. In such cases it is recommended that the glass be scored as previously described, or the entire frame be hinged at the top and arranged to swing outward.

Use of Equipment Vents

There are a number of industries in which the explosive dust is confined within the processing equipment. Spray drying chambers, grinding and bolting apparatus and dust collectors are examples of such cases. It is desirable to vent such equipment directly to the outside of the building and where the inclosure or shell of the machine is of light construction, a vent area of not less than 1 square foot for every 30 cubic feet of volume is recomended.

For more substantial equipment, having reasonably high bursting strength, a smaller vent can be used. Attention should be given to the design and construction of both equipment and vents, to be sure they are capable of withstanding explosion pressure. In many cases special caps and seals are necessary in equipment vents, but where they can be used to prevent the escape of an explosion from a machine into a room where workmen are employed, they may be the means of preventing loss of life, personal injury or heavy property damage.

Location of Vents

In all of the tests referred to, considerable data were obtained concerning the location and distribution of venting areas. It has been found that there is a great advantage in being able to vent an explosion at its source, or before the pressure has a chance to build up. Tests at the Arlington Testing Station proved that a cubical shaped room, with vents or windows on all sides, is the type which can be most effectively vented.

When explosions were produced in the gallery which was 20 feet long and only 2½ feet wide and high, the pressure built up rapidly as the explosion propagated from one end to another. An explosion in this gallery

could be vented without glass breakage through a ½-square foot vent, located at the end where the dust cloud was ignited, but if this vent was closed the pressure built up so rapidly that a two square foot vent, located

Disastrous Results of a Dust Explosion

20 feet from the source of ignition, was not sufficient to vent the explosion without breaking glass. In other words, in a long narrow room it may be impossible to provide sufficient venting area at one end alone to release an explosion, before destructively high pressures are reached.

It is for this reason that suggestions have been included in certain safety codes, covering the dimensions of rooms in which a dust explosion hazard exists.

Safety Codes

The Dust Explosion Hazards Committee of the National Fire Protection Association, formed with the cooperation of the U. S. Department of Agriculture, has prepared safety codes for the prevention of dust explosions covering the hazard in a number of industries and the following completed codes have been approved as American Standard.

1. Safety code for the prevention of dust explosions in starch factories.
2. Safety code for the prevention of dust explosions in flour and feed mills.
3. Safety code for the prevention of dust explosion in terminal grain elevators.
4. Safety code for pulverizing systems for sugar and cocoa.
5. Safety code for the prevention of dust ignitions in spice grinding plants.
6. Safety code for the prevention of dust explosions in wood flour manufacturing establishments.
7. Safety code for the installation of pulverized fuel systems.
8. Safety code for the prevention of dust explosions in coal pneumatic cleaning plants.
9. Safety code for the use of inert gas for fire and explosion prevention.
10. Safety code for the prevention of dust explosions in woodworking plants.

The complete text of these codes has been published by the Bureau of Labor Statistics of the U. S. Department of Labor as Bulletin No. 562 entitled, "Safety Codes for the Prevention of Dust Explosions," and a supplemental bulletin on the same subject, No. 617. Additional detailed codes are in the course of preparation by the committee. Codes covering the dust or dust and gas explosion hazard in coal mines have been formulated by the U. S. Bureau of Mines in cooperation with other agencies.

More Studies Needed

Many of the studies originally planned to develop methods of controlling dust explosions have not been completed and much additional experimental work will be necessary. The venting area required to release the pressure in explosions of dusts other than those tested should be determined. A study of flame travel during dust explosions in different shaped rooms and a series of tests to determine explosion pressure produced in deep bins or vaults will be desirable. The heavy losses of life and property already caused by dust explosions in different lines of industry are an incentive to carry on work which will aid in reducing or eliminating this hazard.

Ontario Fire Loss Report

The Ontario Fire Marshal recently issued the fire loss report of the province for the third quarter of 1939. This report, covering the months of July, August, and September, shows a decrease of 110 fires or a decreased loss of $41,095 over that for the same period of 1938. For the first nine months in 1939, there was a decrease in the total loss of $740,772 although the number of fires increased by 289 over that of the same period in 1938.

Veteran Fireman Honored

Frank Rosenthal, veteran fireman of Cincinnati, Ohio, was the guest of honor at a surprise dinner given in his behalf by his friends, including city officials. Rosenthal, who is now seventy-four, is the only man to serve fifty years in the Cincinnati Fire Department. Rosenthal is now in charge of the testing and repairing of all the fire hose that is used in the City of Cincinnati, and has been serving in this capacity since 1917.

Benjamin Franklin as a Fireman

The country knows about Benjamin Franklin as a political leader, printer, publisher, scientist and philosopher. It does not generally know that he was Chief of the Union Fire Company, Philadelphia, the first volunteer organization in America, which he established in 1736. The painting shows Mr. Franklin at the age of forty and in the background, the original home of the Union Fire Company. The portrait was presented to the company in 1795 and it hung there until the company passed out of existence in 1855. The painting is now in the museum of the Insurance Company of North America at Philadelphia.

Fire Prevention Week

—and how Fire Departments Participate in it.

FIRE prevention has now become more than a week of intensive educational effort. In many communities, programs have been planed to drive home fire prevention messages throughout the year, although during Fire Prevention Week, the work takes on a certain amount of showmanship.

This article, which is a continuation of installments published in the September and October issues, presents the fire prevention work carried on by many municipalities.

La Porte, Ind.
A. E. Horman, Chief

We will observe Fire Prevention Week by giving speeches and fire drills in all schools. Sidewalks on all corners will be painted by Boy Scouts with "Prevent Fires"; inspections will be made of all business buildings by firemen; posters will be placed in all factories and business houses, and all school children will visit the fire station for instructions. Inspection blanks for homes will be filled out by children, and puzzles will be given to school children regarding fire prevention. We will have window displays; carry newspaper publicity daily, and have speeches in rural communities.

We cooperate with the Chamber of Commerce Committee fully in all activities. Moving pictures on fire prevention will be shown. We start our activities early and lead up to Fire Prevention Week. Fire Prevention is practiced the year round.

Kansas City, Mo.
Thomas J. Hardwick, Chief

This department will take part in Fire Prevention Week by having a general inspection of all buildings by the Captains of the department, regular routine inspections by the Fire Prevention Bureau, public demonstrations by the fire department, fire drills at all public, parochial and private schools, a series of radio talks throughout the week, and motion pictures and fire prevention talks will be given before various civic and church groups.

Fitchburg, Mass.
M. J. Shea, Chief

Three weeks before Fire Prevention Week we have the local paper print a story on the reason for such observance and how it is to be observed.

The following week, uniformed firemen start inspecting dwellings in every section of the city, which takes about three weeks.

During Fire Prevention Week, every business house is inspected. A uniformed fireman gives a talk in every school and we furnish a speaker for any organization wishing one. Fire drills are also held in every school. Fire prevention leaflets are given to school children, and cash prizes are offered for the best essay on the subject.

Several store window displays are exhibited and quite a bit of newspaper publicity carried.

Freeport, Ill.
Albert Luedeke, Chief

We participate in Fire Prevention Week by having general inspections of buildings in our city by the members of the fire department, fire drills in our schools and orphanages, and also by having our Fire Prevention Bureau distribute pamphlets on fire hazards to schools. We also ask all our clergymen to give a short talk on fire prevention from their pulpits. In addition we have prominent men, such as lawyers, give talks to the different clubs.

Atlantic, Iowa
Wright Hedges, Chief

Fire prevention in Atlantic is directed by the fire department through the Fire Prevention Committee of the Chamber of Commerce, and the *Atlantic News Telegraph*.

We conduct a spring clean-up campaign, during which the fire department inspects business houses, schools, churches, etc.

During Fire Prevention Week the program is similar, with the addition to the inspections of talks to school children, announcements from ministers, hydrant placards put out by the Chamber of Commerce, news stories and editorials. Playlets are given at the high schools. Fire prevention posters are furnished by the Station Fire Marshal, and visits are made to the fire station by grade school children, where apparatus and equipment is shown and explained. A demonstration is also made of what happens when an alarm is received.

Fire Department activities are published regularly throughout the year as news stories.

Clarksburg, W. Va.
J. J. Martin, Chief

This Department participates in Fire Prevention Week by carrying articles in the morning and evening papers, having inspections, fire school drills, one or two window displays, National Board posters, as well as home and business inspection blanks, and school inspection blanks.

Pittsburgh, Pa.
N. A. Phelan, Chief

The Pittsburgh Fire Department participates in Fire Prevention Week activities with much enthusiasm.

Each year, firemen are detailed to every school in the city to speak to the pupils on fire prevention. I personally make several radio talks during the week, as do several of the other chief officers. The city is placarded in prominent places; window displays are made up for the merchants by firemen; demonstrations are given by firemen to Boy Scouts and other boys' organizations, using a miniature building that has been constructed by firemen. They demonstrate gas explosions, the danger of overloading electric lines by amateur electricians, defective flues, furnaces, etc.

We also send apparatus through the business district advertising Fire Prevention Week.

All mail leaving the Bureau is stamped with fire prevention slogans.

Peabody, Mass.
William C. Mahoney, Chief

We participate in Fire Prevention Week by inspecting all schools and addressing pupils on fire prevention.

Newspaper articles are carried, and posters used in windows. House inspections are made of the entire city by members of the Department off duty.

Albany, Ga.
Carl B. Ahlgren, Chief

Our Department observes Fire Prevention Week by giving demonstrations at schools, clubs and lodges, by having window displays in store buildings, by a paint-up and clean-up drive, by burning dry grass on vacant property and charging same to property owner, and by showing moving pictures in the various theatres.

Fort Smith, Ark.
M. J. Brun, Chief

Our Department participates in Fire Prevention Week. Radio talks are given on fire prevention; talks are given by uniformed firemen to school groups and fire prevention literature is distributed.

Long Beach, Cal.
A. C. Du Ree, Chief

This Department has always engaged actively in Fire Prevention Week. Our plans for this year are rather incomplete, since we usually wait to see what program the National Fire Waste Council and the National Fire Protection Association have that we can use.

In the past, we have tried to cooperate as closely as possible with the various civic organizations interested. This year the Junior Chamber of Commerce has budgeted some money for an educational program along fire prevention lines, as well as the institution of an active fire department improvement program. We also work with the Parent Teachers Association for the inclusion of fire prevention activities in the schools. Last year, this Department won second place in cities of the second class

for our fire prevention activities. All phases of publicity and advertising, including radio programs have been employed. Talks by prominent speakers as well as by chief officers of the Department have been made. Editorials were run in the daily papers. Inspections of dwellings and mercantile establishments were made. Fire department equipment was displayed in vacant store windows.

Stress is usually laid on the fact that fire prevention work should be carried on throughout the year, rather than just during Fire Prevention Week, since active prevention will decrease protection costs.

Olean, N. Y.
Frank W. Wallen, Chief

Our Department participates in Fire Prevention Week by giving talks, carrying articles in the newspapers regarding fire hazards in homes and also by cautioning stores to keep all empty cartons and papers in tin containers.

Bristol, R. I.
Fred Guevremont, Chief

Our Department will observe Fire Prevention Week by having a fire truck with big "Don't" signs go through the streets twice a day. I am also trying to get a circular on fire prevention.

San Diego, Cal.
J. E. Parrish, Chief

Our program this year will consist of daily newspaper articles on fire causes and their prevention, radio programs, presenting prominent citizens who will voice the many benefits to the city and citizens of fire prevention being practiced the year round. Talks will also be given before service, fraternal and social clubs, public and private schools, with illustrative colored lantern slides showing causes of fire and fire prevention methods. Fire prevention posters will be placed in public buildings; fire hazard displays will be shown in the lobbies of local banks, and fire prevention inspection contests will be held among school children.

Baltimore, Md.
Howard Travers, Chief

We participate in Fire Prevention Week activities along the line of suggestions of the National Board of Fire Underwriters and National Fire Protection Association.

Durham, N. C.
Frank Bennett, Chief

We participate in Fire Prevention Week. Our probable outline for this year is a meeting with the teachers and children of each school, parent-teacher association, janitors of schools and apartments; civic clubs of the city. We also plan to carry publicity in the newspapers. Radio addresses will be given, folders distributed, and 15,000 merchantile blanks used. The program will be in joint cooperation with the Durham Chamber of Commerce, The Durham Fire Insurance Exchange and the Durham Fire Department.

For the past few years during these programs the need of automatic sprinkler protection in the more hazardous buildings has been stressed. We use this as a feature of our fire prevention protection.

Albany, Ga.
D. W. Brosnan, Chief

We will observe Fire Prevention Week as we have in the past several years.

All of the off shift men of the department will be pressed into service to make a clean-up inspection of the residential area before winter comes. This inspection covers heating equipment of every kind, electric wiring, cleanliness of the home with regard to rubbish, inspection of exits, chimneys, etc.

We also plan to distribute leaflets enumerating common fire hazards in the home.

Inspections are made of mercantile and factory districts and public buildings of every kind. Talks are given at all schools by uniformed firemen in an effort to promote fire safety. Talks are also given before all civic clubs to make them fire conscious.

Newspaper advertising is carried as well as news stories. Radio addresses are given in an effort to try to reach every person in our campaign. We have had parades and other types of propaganda until we have worn them threadbare. We now try to keep our people fire conscious. We make them build their chimneys and flues safe, install correct electric wiring and have them rapidly removing wood shingles as a roof covering. The result has been no defective flue fires in two years and wood shingles have been reduced from ninety-five per cent to five per cent with the resultant reduction in the number of fires.

Fargo, N. D.
F. E. Campion, Chief

Our Department participates in Fire Prevention Week by making appeals and giving warnings to the public over the local radio broadcasting station and carrying newspaper advertising in the local papers. We also have window displays and general inspections.

Providence, R. I.
Thomas H. Cotter, Chief

We participate in Fire Prevention Week. A week before the opening of our Fire Prevention Week program we open our Fire Prevention Headquarters in the heart of the City. This building is open to the public for two weeks. We plan to have around one thousand people in each day or perhaps twenty thousand for the two weeks that we are there.

In one of the demonstrations we plan to have on the dangers of cleaning with gasoline, is a long trough placed on two horses. A piece of waste that has been soaked in benzol is placed in the upper end of the trough. At the other end of the trough is a lighted candle, and when the fumes reach the flame, there is a flash and a streak of flame right back to the piece of waste. And to show that the fumes are heavier than air, a candle is placed in the center of this trough and raised about one inch from the bottom. The fumes will not ignite at this first candle, but will travel to the candle at the end and then burst into flame. After witnessing this demonstration we feel that many people discontinue that dangerous practice at home, cleaning with dangerous chemicals.

A wooden barrel burned from hot ashes, and a metal can to show the right way to store ashes will also be on display.

There will also be on exhibition an ironing board with an electric flat iron burning through in contrast to the right way that an iron should be left.

A sprinkler head in operation will be another exhibit.

An electrical hazards board with five panels all illuminated and with working models showing how to prevent fire and shock from the proper use of electricity will be another exhibit.

A miniature Charlie McCarthy connected to an amplifier system and dressed as a rookie fireman will talk to the people. Moving pictures showing sound and silent films on fire prevention will be another feature.

All types of fire equipment and a complete fire alarm system that sounds an alarm and registers the box number on a tape machine will also be exhibited.

Interesting fire pictures and many attractive signs with good fire prevention slogans will adorn the walls, and a very interesting window display, showing a burning building and a miniature pumper pumping water on to it will attract the attention of people on the street. Uniformed members of the Bureau of Fire Prevention with members of our Public Relations Committee will be on hand to answer questions and operate the exhibits and to distribute fire prevention pamphlets. This building will be open to the public from 9 a. m. to 9 p. m. In addition to this, radio talks from three local stations will be given at least twice a day.

Another feature will be a small house built on a bumper that has an amplifier and loud speaker system. Entering the house, a fireman will operate the microphone and spread the message of Fire Prevention. Inspections will be held in all schools and a fire drill will be held. All of the junior and senior high schools will be given a practical demonstration that will last for forty-five minutes with working models showing dangerous fire hazards found during inspections and how fires start and what to do to prevent fire.

Dwelling inspections will be made by members of the off-shift and a card showing the location of the nearest fire alarm box will be left with the householder. Over seventy-five thousand dwelling inspections will be made and many fire hazards found and corrected.

Thousands of posters are to be put in stores throughout the city.

Billboards in different sections of the city will also be used.

Street cars and busses all carry the National posters on Fire Prevention Week.

Interviews on the radio between a housewife and a member of the fire department, with a well planned script will also bring out many interesting points on fire prevention.

All churches in the City will read an article prepared on Fire Prevention Week, and also invite all parishioners to visit the Fire Prevention headquarters.

Fire prevention talks by members of the Public Relations Committee and other qualified speakers will be made to groups of civic clubs, and all schools in the city.

Large department stores have cooperated by giving over a large show window for our use. In one of these a large

box will be placed and a human hand appear holding a card with a message for Fire Prevention Week. This is worked with the aid of mirrors and is very effective.

Newspaper publicity every day with pictures of activities in Fire Prevention headquarters, interviews with the man on the street, and a member of the Fire Department and trailers in all theatres will complete the program.

Every day at noon, Ladder 1 will roll out and after going through the center of the city will drive up to City Hall where the crowd gathers to see the aerial raised and a man climb to a large sign where he will place a number indicating the number of fires in the city in the last 24 hours.

We have a Bureau of Public Relations made up of sixteen members of the Department who are now meeting weekly to prepare these Fire Prevention Week activities.

Lincoln, Neb.
Francis W. Donnelly, Chief

Yes, we participate in Fire Prevention Week.

Our annual fire prevention program consists of a general inspection of all buildings in the high value district, twice each year by the uniformed force of the Department, during May and October.

Fire drills are supervised in all schools, factories, sewing centers, etc.

Talks and lectures are given to school children, employees of various institutions, clubs, etc. All fire hydrants in the city are inspected by the Fire Department, and are oiled and checked to see that they drain property. Radio broadcasts are made during fire prevention week.

Boy Scouts distribute pamphlets and literature on the prevention of fire to the homes. Home inspection blanks are also distributed through the schools to the children.

Phoenix, Ariz.
Frank Cochrane, Chief

We do participate in Fire Prevention Week activities. Our program will include the distribution of posters issued by the National Board of Fire Underwriters, the distribution of over 11,000 questionnaire blanks to the school children pertaining to cleaning up around the home, fire prevention talks to all the schools, fire prevention talks to service clubs, and as a climax to the activities of the week, a combination first aid and fire fighting demonstration will be given at the drill tower.

Duluth, Minn.
John A. Fisher, Chief

Our Bureau of Fire Prevention does carry on an extensive campaign each year during Fire Prevention Week. Plans for this observance is usually formulated by an active Fire Prevention Committee of our Chamber of Commerce. This year, we expect to stress the need of continuing our low fire loss record, which, incidentally, is the lowest in thirty years. Our program follows:

Fire prevention posters are posted in store windows, on school bulletin boards and in all other public places. Fire films are shown in theatres. Full page advertising of fire products, together with propaganda, is shown in two daily newspapers for an entire week. Fire prevention articles, prepared by the Fire Prevention Committee, are released to two Newspapers, with a circulation of 70,000. Distribution of home inspection blanks to school children is made, as well as radio broadcasts by Assistant Fire Chiefs and Deputy State Fire Marshals over two networks—probably seven broadcasts in all.

Independent of our activities, there is conducted in the public schools a series of fire prevention plays, theme writings, etc. Each teacher has an allotted task dealing with the problem of fires in our city.

Savannah, Ga.
John H. Monroe, Chief

Our Fire Prevention activities are not confined to one particular week in the year as we practice fire prevention during the entire year. However, we will, as in the past, participate in the Fire Prevention Week activities this year. Our activities are comprised of the inspection of all homes and business places by the entire off-shift of the Department, inspections and fire prevention addresses in all schools and hospitals of the city, daily radio addresses, talks before the various civic clubs of the city, distribution of home inspection blanks to each and every school child of the city, and also self-inspection blanks to the various business establishments of city. Fire prevention placards and displays are shown in the various show windows in the stores of the city and a prize is offered for the most effective display.

Pieces of fire apparatus are placed on prominent street corners, also a wreck appropriately placarded warning the public against racing or not heeding the warning sirens of fire apparatus when responding to an alarm, and demonstrations by the personnel and apparatus of the Fire Department each day of the week in the public parks of the city will be made. These and many other activities are carried on by this department during Fire Prevention Week in an effort to bring forward to the public just what fire means from a standpoint of loss of life and money and how, in the majority of cases, it can be prevented.

Miami, Fla.
A. M. Willis, Chief, Bureau of Fire Prevention

We are planning to have a fire drill demonstration at our Fire College, the purpose of which would be for demonstrational purposes to the public. This demonstration will include talks along fire prevention lines. In addition to such activity, we are also planning radio talks, visits to public schools and other institutional buildings.

A building survey has just been started and this survey will reach its high peak during Fire Prevention Week this year.

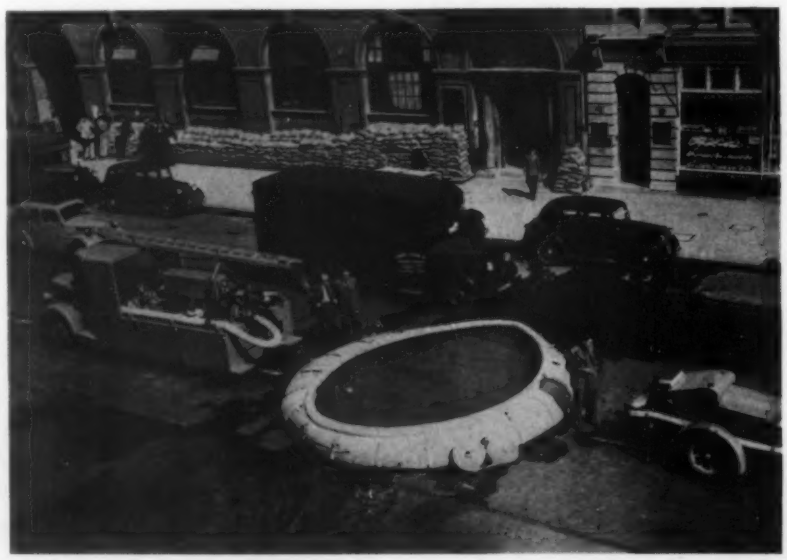
Middletown, Conn.
Michael W. Lawton, Chief

We participate in Fire Prevention Week by inspecting all business buildings, basements, rear porches, yards, etc. Apartment buildings, basements, and oil burners are inspected each month in the year. When we inspect the yards and porches of homes, we clean up all the rubbish we find therein.

Schools are inspected and drills are held in each school. Talks are given on fire prevention as well. The time made in clearing the school buildings is published in the local papers and the pupils are on their toes when the signal is given for a fire drill.

The fire department gives an exhibition drill for the public, such as using the aerial ladder for a water tower, pumping operations, net jumping, rope sliding, hose laying, etc.

(To be concluded)



London Firemen Prepared to Fight Fires Caused by War

Fighting fires under war conditions is far different from that during peace time. The first service of London, England, has placed emergency canvas reservoirs with hose in the streets, so that should the water supply fail through bombing of streets, some water will be available.

THE ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

USE OF FOG NOZZLES

EACH development in industry means that there must be similar advancement in the fire service, to meet the new problems which industry has introduced.

One of the new appliances in the fire service is the fog nozzle, developed to fight oil fires and to cut down the possibility of water damage to the contents of burning buildings.

While at first intended for a special type of service, practical demonstrations have proven the value of fog nozzles in a general field.

In this issue, is presented a discussion on the use of the fog nozzzle and the results secured therefrom. The problem in full is given in the box on this page. In the box on the following page is the question that will be discussed in the next issue.

Discussion of the Question

Victor H. Veit, Chief, Stamford, Conn.: We have used fog nozzles to very good advantage in fires where tar pots boil over, or where tar is involved with fire for any reason.

We have also obtained very good results with them on gasoline fires where there is no danger of an explosion.

We have found them particularly effective in rooms that are not too large, yet fully involved with fire. This type of a fire is extinguished, in most cases, by just walking the fog nozzle through the center of the room, if possible. Unless the fire is too deeply rooted into furniture or stock that may be piled therein, it is extinguished in a short time. If the latter is found to be the case, the solid stream is then directed where it is most needed. We have had such good results with these fog nozzles that they are carried on all our machines.

Irby M. Klinck, Chief, Memphis, Tenn.: We use both 2½-inch and 1½-inch fog nozzles on our leader lines. The 2½-inch fog nozzles are kept more or less for special occasions, but always available. The 1½-inch fog nozzles are in constant service on 1½-inch leader lines in residential sections.

They are used for oil and gasoline fires, when not too large, and also for mill fires, where dust would be stirred up by a concentrated stream. We also find them particularly effective in fires in attics and residences and many other types of fire.

It is our experience that fog nozzles whatever the size, will do just about everything that a straight nozzle will do, and then do the spray work in addition. They are most valuable in dwellings where minimum water damage is desired. It is a boon in clearing out smokey attics without throwing too much water.

We have had good results with 2½-inch fog nozzles on gasoline at drill exercises. Actual experience in the field is limited so far. We find that a good pressure of from 75 to 100 pounds nozzle pressure is required for best results.

G. M Twaddle, Chief Engineer, Reno, Nev.: We use fog nozzles on our 1½-inch siamesed lines, on residence and small mercantile fires. They have proven very effective on small fires and especially in buildings heavily charged with smoke. We have had exceptionally good results whenever these nozzles have been used. We have cut down the water damage considerably. We have never had the opportunity to use these nozzles on oil fires.

T. P. Treadwell, Chief, Fort Collins, Col.: We do use fog nozzles on our 1½-inch lines and we have used them on all types of fires both in residential and mercantile districts.

We have found that they work very satisfactorily, particularly on trash fires, and have on two occasions used them in basements with excellent results. The Captains of both Company No 1 and No. 2 are sold on the use of this type of nozzle because it does two things—it holds down the water damage and can have either a vapor stream with a 60 degree angle, 30 degree angle or straight stream that has proven very satisfactory as the number of gallons discharged per minute is small.

I am of the opinion that vapor nozzles will be used more and more as we learn how to use them.

Lawrence E. Smith, Chief, Eau Claire, Wis.: We have fog nozzles in the department, but their use has been limited due to the fact that we have not had them in service long enough to know their real value.

J. J. Blackstone, Fire Marshal, Burkburnett, Tex.: We have one fog nozzle in our department which is carried on the line on our pumper at all times. So far, we have used it in fighting all types of fires. We find the fog nozzle very effective for use on an inside fire. It seems to blanket the fire and smother it more quickly than a solid stream. We have secured excellent results from our fog nozzle. In fact, we think it is the most effective nozzle we have tried.

C. F. Baker, Chief, Highland Park, Mich.: Our experience with fog nozzles has been very good on almost all types of fires especially those involving inflammable liquids. On one occasion, we fought a 4,000-gallon truck fire where all the liquid was dumped on the pavement. This fire was extinguished in about twenty minutes with two fog nozzles.

The ordinary basement fire can be handled with fog nozzles very nicely and the men on the pipe line will take less punishment than with the plain nozzle.

I do not think the fog nozzle is of much value on outside building fires where the fire has gained considerable headway.

Regarding inflammable liquid fires, I believe care should be taken to prevent back flares and, under no condition should men be allowed to enter the area that has been extinguished until it has been carefully checked.

Charles E. Foster, Chief, Astoria, Ore.: We use fog nozzles on all apparatus. They are used on all types of fires and the results have been very successful.

Carl E. Hunt, Chief, Sioux Falls, S. D.: We have both the 1½-inch and 2½-inch fog nozzles in use in our department. While our experience has been very limited, I believe they have a place in any department. We have never had to use them as yet on oil or gasoline fires, although we have had very fine results in basement fires. We usually open up the spray until the men get into the cellar and then open up the tip to the solid stream to fight the fire. If the smoke or heat becomes too intense, we then turn it back to the spray.

George R. McAlpine, Chief, Oklahoma City, Okla.: We use the Akron type of fog nozzle.

We have found them effective on grass fires, small oil fires and also as a method of cooling the temperature in buildings where there is no fire, or very little fire that necessitates cool-

HERE IS THE PROBLEM

Do you use fog nozzles in your department?

For what types of fires are they employed?

On what types of fires have you found them particularly effective?

What results have you secured?

ing with a minimum use of water. The fog nozzle is also effective for absorbing ammonia.

We have made extensive tests with fog nozzles on oil fires, and I believe that while the fog nozzle works on small oil fires, it is not very effective in extinguishing major oil fires.

No doubt the fog nozzle has served many departments throughout the country with a high degree of efficiency, but as I have said, we have confined practically all our experiments to extinguishing oil fires. For that reason, I can only speak for that type of fire, and I could not recommend the fog nozzle for major oil fires.

A. C. Du Ree, Chief, Long Beach, Cal.: Fog nozzles were first installed in our department in 1935.

The fact that our principal industry is petroleum production, constitutes somewhat of a problem in fire extinguishment, especially in tanks, sumps and other storage. After considerable research and experimental work, we are convinced that the proper application of fog streams on petroleum fires is the most effective way of extinguishing the fire.

The use of the combination straight stream with the fog nozzle in structural fires such as in attics, basements, light wells, and other confined areas has, in our experience, reduced the water damage to a nominal figure, as well as given added protection to the firemen, by driving out smoke, heat and emulsifying gases.

In my estimation, the fog method of extinguishing fires is the most advanced step developed in modern fire fighting technique.

Our results have been most satisfactory. If the nozzle is used with intelligence, too much can't be said in favor of it.

Walter S. Knight, Chief, Salt Lake City, Utah: On several occasions we have employed our fog nozzles on oil fires and have been very successful.

We find, when we use the nozzle at between 125 and 150 pounds pressure, the fog has the effect of smothering as well as cooling the burning area below the ignition point. However, I believe the future holds considerable progress to be made by manufacturers in the construction of fog nozzles. My experience tells me that numerous types of fires will be extinguished some day by the use of the fog nozzle.

M. G. Brown, Chief, Winston-Salem, N. C.: We do not have any fog nozzles as yet, but I have an order in for six Elkhart Mystery Fog Nozzles. I expect to use them on gasoline and oil fires as a shield for the men and also on basement fires. I am sure that I will be able to use them on many fires.

E. F. Coop, Chief, Pasadena, Calif.: We have eighteen fog nozzles in our department, all but three of which are of the adjustable type for fog or straight streams.

We use the 1½-inch adjustable type on every type of fire that does not require a larger stream.

We use fog nozzles on all fires that are confined. As the nozzles are adjustable, they can very quickly be changed to straight streams, if necessary.

Results have been satisfactory as a whole, but on large fires or on fires that have broken out, the old straight solid stream is still "king."

We use a non-adjustable type for volatile fires which takes a higher pressure, with good results.

Earl A. Traeger, Chief, Minneapolis, Minn.: We use fog nozzles, and for the past three years have been working with a local firm to develop a 1½-inch tip that can be utilized with a straight ¾-inch stream or turned into fog.

We are experiencing some difficulty, however, in getting a combination tip that will stand up under the high pressure necessary to produce fog. It is our thought to have a combination nozzle on each 1½-inch lead from our pumpers to be prepared to meet any emergency, and I further feel that fog nozzles have a possibility in certain types of fires other than oil with a resulting lower water loss.

We have used them on oil and on confined fires in buildings. We also use them for cooling and ventilation purposes in some instances.

We have found them effective in dwellings where fire was confined to attic, closet, or room; in apartment houses where fire is confined to a room and has filled the hallway with hot air, smoke and gases; in grain elevator where fire is confined to bin. Fog does not disturb dust to the extent that spray from other straight tips does.

I would say that we have had fair results in the types of fires enumerated above, but as previously stated, it is my opinion that fog nozzles have their possibilities in the fire service and will contribute towards lower water losses, but they are still in the experimental stage.

L. B. Barnum, Chief, Phoenix, Ariz.: We use fog nozzles in this department. We have them to fit 2½-inch, 1½-inch and booster line hose.

We use these nozzles on grease and oil fires; more particularly, gasolene, oil, tar pots, acetylene, grease. We have found them to be particularly effective.

William J. Sudeith, Chief, Saint Paul, Minn.: We use fog nozzles on all types of fires where volume is not needed. We have found them particularly effective on inflammable liquid fires. We have found that the use of fog nozzles reduces water losses to a minimum.

Edward J. Cannon, Chief, Norfolk, Va.: We have several fog nozzles in this department. We can use them on any type of fire that does not cover too much area or that has not become too badly involved. In cases where inside work is advisable, working conditions are made safer if the men are covered by the mist from this type of nozzle.

We have found them particularly effective in extinguishing oil and tar kettle fires as any other type of stream would cause a boil-over or have a tendency to spread the fire.

The results secured so far have been very gratifying and it has demonstrated its value in so many ways that I believe every modern fire department will have to put them into service to handle the many difficult situations we run into so often.

Emil A. Johnson, Chief, Boulder, Col.: We bought these nozzles about a year ago for gasoline fires, but have not had a gasoline fire to try them on.

We have found the 1¼-inch fog nozzle very effective in attic fires as there is less water damage resulting therefrom.

James Louis McLane, Chief, Charleston, W. Va.: We use fog nozzles on inside fires, particularly dwellings. The results have been very satisfactory. We have not had occasion to use them on other types of fires.

J. Ludie Croom, Chief, Wilmington, N. C.: We have two fog nozzles in the department, but have never used them at a fire. We have given demonstrations with them. They seem to be very useful on oil fires and on fires confined in a closed area such as rooms, closets, etc.

William J. Lutz, Chief, Wilmington, Del.: We have in service five fog nozzles in this department which have been used chiefly on oil fires. The opportunity to experiment with this type nozzle hasn't presented itself as yet, but I believe it could be used to advantage on other type fires. The results have been very fine on oil fires.

A. Brown, Chief, Birmingham, Ala.: We have fog nozzles, but as yet we have had no occasion to use them in actual fires. We plan to use them on oil or tar fires and to take them in on the first lead to mills at grain fires.

These nozzles are in the nature of an experiment as yet. We have used them on a couple of occasions at demonstrations, but have not had an actual fire that would require this type of nozzle.

Thomas H. Cotter, Chief, Providence, R. I.: This department has only a few of this type of nozzle which were bought for experiment on gasoline and other volatile fires.

To date, except for demonstration to acquaint the personnel with their use, we have had no opportunity to appraise their true value on intense flame.

G. Dean, Chief, Orlando, Fla.: This department uses fog nozzles both on booster and on 2½-inch lines. They are used on any type fire that water should be used on and which does not require a "hard hitting, deep cutting" solid stream.

We have found that on inside house and attic fires, by the time the fire is out, the small quantity of water used is pretty well evaporated

Harry R. Taflinger, Chief, Lima, O.:

HERE IS THE PROBLEM FOR THE NEXT ISSUE

What equipment and methods you use for fighting brush fires? Have they proven effective?

Do you use the knapsack type of portable pump tank, and if so, with what results?

Do you use portable pumps for providing pressure at locations inaccessible to regular fire apparatus? Have they proven effective?

At present, I have no fog nozzles in this department. However, the city has under construction three new pumpers. I am going to try to get nozzles for new equipment as I am told they are very effective.

We used something similar a few years back, an umbrella spray which was very good.

John F. Moroney, Chief, Meriden, Conn.: We do use fog nozzles in our department. We have used them for cellar fires and they also have proved effective on tar and pitch fires. They have also proved of value on fuel oil (when quantity of oil was small) fires.

C. J. Henry, Chief, Lexington, Ky.: We use fog nozzles on one-inch and 2½-inch lines. These nozzles are employed on automobile, gasoline and oil fires, as well as on fires in shingle roofs, grease ducts in hotels and restaurants, cellar and attic fires.

We have found them particularly effective on automobile fires, fires in large grease ducts in hotels and restaurants. We have been successful in gasoline and oil fires provided we can get to them in an early stage before they have had time to build up high temperatures, but when the fire has burned for any length of time, it is difficult to extinguish it with fog. We have used them on attic and cellar fires which have not gained too much headway. If it has, we use large streams and then finish up with fog.

Fog will extinguish the fire with small amount of water by absorbing heat and thus reducing temperatures, and expelling smoke and gases from buildings. This enables the firemen to overhaul and clean buildings more speedily, and at the same time reducing large water losses to building and contents.

Charles H. French, Chief, Manchester, N. H.: We have fog nozzles, but have had no occasion to use them.

M. J. Shea, Chief, Fitchburg, Mass.: We use fog nozzles very often to drive smoke out of cellar if vented rear and front, and also use them on oil or gasoline fires. I think they are very effective on these types of fires. I have had good results on two smoky cellar fires, as the fog enables the men to get at the seat of the fire.

C. M. Johnson, Chief, Knoxville, Tenn.: We have in our department the type of fog nozzles which throw either a direct stream or the fog mist as desired. We find this type of nozzle very useful on small fires, especially where fires have not gained large proportions in attics and rooms. We have found them to be very satisfactory in extinguishing the fire quickly and with a minimum of water.

We have found these nozzles to be very fine for oil and gasoline fires.

We have one nozzle for each pumper.

Oldest Massachusetts Chief Dead

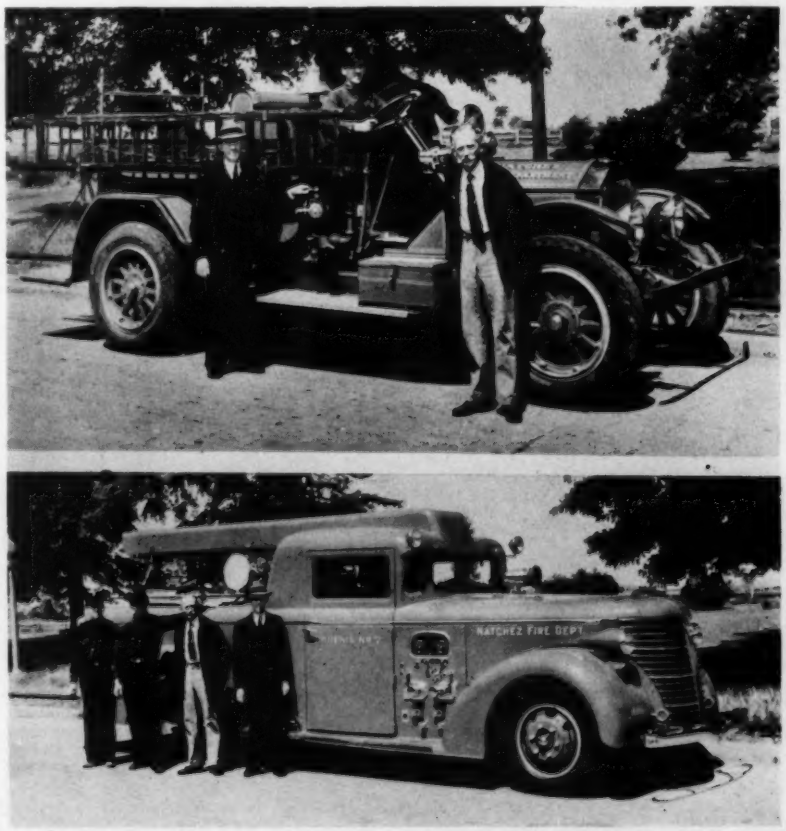
Irving C. Waite, for 30 years Chief of the Fire Department of Bedford, Mass., died at a Concord hospital at the age of 80. He was the oldest Chief in the state.

He is survived by his widow, three sons, a daughter, ten grandchildren and four great-grandchildren.

WHAT'S BURNING

THE following list includes fires of $50,000 loss and over in the United States and Canada, for the month of October, 1939. These figures, compiled from the telegraphic reports, are based on estimates made at the time, and are subject to later investigations and consequent revision. Taken as a whole, however, they are an approximately correct view of the losses incurred. The figures represent loss in thousands of dollars.

Month Ending October 31	Loss in Thousands of Dollars
Los Angeles, Cal.—Palomar ballroom theatre and cafe destroyed	200
Brooklyn, N. Y.—Cox's Baths destroyed	80
West Memphis, Ark.—Federal Compress & Warehouse Co. storage shed destroyed	180
International Falls, Minn.—Business building destroyed	80
Akron, Ohio—Property of Rohner Paper Co. destroyed	80
Oklahoma City, Okla.—Southland Hotel destroyed	80
Berea, Ky.—Davidson Wholesale Grocery destroyed	80
Vevay, Ind.—Waterhouse destroyed	50
Drumheller, Alta.—Tipple of Coal Co.'s mine destroyed	80
Belle River, Ont.—Grain & Seed Co. plant and elevator destroyed	50
Eudora, Ark.—Warehouse destroyed	170
Blackshear, Ga.—Tobacco warehouse destroyed	60
North Bergen, N. J.—Property of National Battery Co. destroyed	170
Bethpage, L. I., N. Y.—Barn on estate of J. W. Robinson destroyed	50
Rockland, Mass.—Bank building damaged	50
Mt. Carmel, Pa.—Store building and adj. property damaged	60
Dallas, Texas—Store building damaged	50
Waco, Texas—Property owned by P. Crespi damaged	70
Miami, Fla.—Factory destroyed	50
Savannah, Ga.—Warehouses destroyed	80
Los Angeles, Calif.—Consolidated Auto Works destroyed	50
West Sacramento, Calif.—Warehouse and plant destroyed	80
Savannah, Ga.—Warehouses destroyed	275
Reno, Nev.—Montgomery Ward store damaged	80
Mt. Carmel, Pa.—Dwellings and store destroyed	60
Gratiot, Wis.—Stores destroyed	65
Fort Dodge, Iowa—Plymouth Processing Co. mill destroyed	210
Trout, La.—Lumber plant destroyed	125
Onancock, Va.—Adjacent business stores destroyed	50
Danville, Ill.—Milling Co. plant damaged	50
Louisville, Ky.—Property in Nashville Railroad yards destroyed	80
Farmville, N. C.—Tobacco Company plant damaged	50
Harlan, Ky.—Property of Coal company destroyed	60
Grand Rapids, Mich.—Manufacturing plant damaged	400
Philadelphia, Miss.—Office building and adjacent property destroyed	170
Little Rock, Ark.—Office building damaged	50
Kansas City, Mo.—Community Church damaged	100
Davenport, Wash.—Flour mill and warehouse destroyed	55



Comparison of the Old and the New in Fire Apparatus

The new American-LaFrance pumper purchased by Natchez, Miss., has been placed in service and named the John A. Duretta, in honor of the oldest living member of the volunteer fire company. The new truck of the Phoenix Number Seven Fire Company is shown in the lower photograph, and the old one in the upper picture.

PROMOTIONAL STUDY COURSE

Herein is presented a series of definitions, questions and answers designed to aid fire department officers in preparing themselves for promotional examinations. In this department, which appears monthly, will be included questions typical of examinations held throughout the country.

Answers to Questions

1. Cooling the burning materials, (quenching), smothering the fire by excluding oxygen, and snuffing the fire out. The snuffing-out process is rarely used, being confined largely to gas and oil well fires.
2. Carbon dioxide.
3. Steam. It is effective chiefly in confined spaces, where the steam may be made to completely envelope the burning material.
4. Carbon dioxide.
5. Fire buckets, soda and sawdust, wet burlap bags, pump tanks, and sand fire pails.
6. Yes.
7. No.
8. The solution in the body of the extinguisher is a non-freezing one, consisting of calcium chloride and water, whereas in the soda and acid extinguisher the solution is one of bicarbonate of soda and water, which will freeze at low temperatures. The method of operation, too, differs in the calcium chloride extinguisher from that employed in the soda and acid type.
9. Electrical fires.
10. Yes.
11. In establishments where heavy inflammable liquids, greases, etc., are present in vats or open vessels, or on floors.
12. A smothering effect, and a cooling effect due to the carbon dioxide "snow" produced upon the discharge of the extinguisher.
13. Foam generator.
14. The foam generator provides a continuous stream of foam as long as water and foam powder are fed to it.
15. By cooling the burning materials down to a point below their ignition point.
16. When the fire is in a closely confined space such as in a partition, in a box, or similar enclosure.
17. By smothering it. (CTC gases do not support combustion.)
18. The foam forms a blanket which is not readily blown away as is the free carbon dioxide gas.
19. High friction loss and thus poor nozzle pressure.
20. On short stretches large nozzles should be employed, for the friction loss in the hose is less, leaving more pressure available at the engine for sending greater quantities of water through the line.

Hydraulics

1. Cubical contents = $3 \times 3 \times 3 = 27$ cubic feet.
   Weight of 1 cubic foot of water is 62.5 pounds.
   $27 \times 62.5 = 1{,}687.5$ pounds, the weight of water in tank.
2. First find the cubical contents of the length of hose when filled. This is done as follows: Find cross section area of hose and multiply it by length of hose (all measurements being in inches). Cross section area is equal to the diameter $\times$ diameter $\times$ 0.7854, or 4.90875 square inches. Length is 50 feet, or 600 inches.
   $4.90875 \times 600 = 2{,}945$ cubic inches in the length of hose. One gallon is equal to 231 cubic inches.
   2,945 divided by 231 = 12.75 gallons of water in the line. One gallon of water weighs 8.35 pounds.
   $12.75 \times 8.35 = 106.3$ pounds, approximately, which is the weight of water in the 50-ft. section of 2½-inch hose.
3. For every foot depth of water there is a pressure of .434 lbs. 90 feet depth will give $90 \times .434 = 39.06$ pounds at street.
4. 28 feet.
5. 25 feet.
6. Yes. The performance of the engine depends entirely upon the power of the motor. If the motor is required to lift water by suction it will have just so much less power available for use on the discharge side of the machine.
7. The velocity in feet per second is found by multiplying the square root of the nozzle pressure by 12.1. The square root of 25 is 5. Then $5 \times 12.1 = 60.5$ feet per second, which is the velocity of water issuing from the nozzle.
8. The velocity of water from the 2-inch nozzle is found by multiplying the square root of the pressure by 12.1. The square root of 100 is 10. $12.1 \times 10 = 121$ feet per second, which is the velocity of water from the nozzle.
   The velocity of water through the 5-inch riser is found by the following formula:
   $V = d \times d \times v \div D \times D$
   In the above, d is the diameter of the nozzle; v is the velocity of water through the nozzle; D the diameter of the riser, and V, the velocity through the riser.
   Putting these values in the formula, we get:
   $V = 2 \times 2 \times 121 \div 5 \times 5 = 484 \div 25 = 19.36$ feet per second, which is the velocity through the riser.

Fire Department Tools

1. Make sure that auger does not strike a beam or concealed gas or water pipes or electric wiring. So place the hole that water draining through will not injure valuable goods on floors below.
2. Cutting floors, opening doors, opening windows, opening iron shutters, and as a sledge for driving rivet cutters, etc.
3. The flat side of the axe head should be employed, as it is more likely to accomplish the purpose without unnecessarily damaging the panel.
4. Cut a hole in the door with the axe. This can be done in an emergency, though it is not easy work.
5. If auger and a saw are available, make holes with the auger and saw out square part of floor sufficiently large to take cellar pipe. If auger is not at hand, use axe, cutting out a square section. By keeping near a beam, work will be lightened. By making an even, regular hole, repair work will be made simpler.
6. Pry off inside facing of window frame with axe. This leaves the entire interior of window frame exposed for careful inspection.
7. Use battering ram to put hole through the wall.
8. A life belt is built with greater strength and the hook provided thereon has a link connection, whereas the hook on the ladder belt has a swivel connection.
9. The hook on the Morrissey life belt is provided with a lever arrangement, operated by one hand, which controls the rate of passage of rope through the hook, and hence the rate of descent of the person using it.
10. The rattan broom straws do not lose temper and then bend out of shape as do the wires in the wire broom when heated. Although the straws in the rattan broom may be scorched, there is little chance of them burning while the broom is being used.
11. The chafing block is used to prevent injury to hose jackets through vibration caused by pulsation of water coming from pump. Blocks are placed on hose where hose crosses curb near engine, or where it passes over any other object which might injure the jackets through vibration.
12. An advantage of the rocker lug coupling is the absence of tendency to catch on corners or projections, etc., when hose is being dragged. One disadvantage is the inability to present means for hose tower hooks to connect to the rocker lugs when suspending hose in drying towers.
13. Double female connection is employed for connecting two lengths of hose when, for some reason or other, they must be connected male end to male end.
14. Double female reducing or increasing connection.
15. For connecting two lengths of hose which are, for some reason or other, brought together with female to female coupling.
16. When it is necessary to join two female ends of lines of hose together and where these female couplings are not the same size.
17. By use of expansion rings, which force hose against inside of couplings.
18. To expand rings when fastening hose in couplings.
19. To make possible the taking of two lines of hose from a single hydrant outlet (usually the steamer connection). Independent gates on outlets make possible the employment of either line without interfering with the other.
20. To provide a means of bringing two

smaller diameter lines of hose into a single engine inlet.
21. Portable hydrant nipple.
22. A Y connection divides a single line into two separate lines whereas a siamese connection brings two lines into a single line. The single connection on a siamese is male, while on a Y, it is female.
23. When a siamese with clapper valve is employed, the bursting of any one of the lines does not put the layout out of commission, whereas this is the result when a plain siamese is used.
24. With the three way siamese with gate, each line has a separate gate and can be manually controlled at its point of entrance to the siamese, whereas with clapper valves, manual control of any of the lines into siamese is not possible.
25. Yes. It is called an emergency universal coupling.

Chief Thomas Flowers Dead

Thomas Orr Flowers, seventy-six, a fireman of Rock Hill, South Carolina, for fifty-five years, and chief since 1903, died at his home following several weeks of illness. He was the oldest chief in the state of South Carolina.

He joined the fire department in 1884, becoming its first engineer. This was at the time when the town relied on cisterns filled with water to fight fires. In 1903, he was made chief of the city's fire company. During his early connection with the fire department, he was also employed at other work, but in recent years, Chief Flower devoted his entire time to the duties of his two offices as Chief of the Department and City Building Inspector.

He is survived by his widow and his four children.

Kirby Made Chief in Dayton, Ohio

District Chief Joseph A. Kirby, who had been Acting Chief since the death of Chief W. W. McFadden, has been appointed Chief of the department of Dayton, Ohio.

The promotion of Dayton's senior district fire chief marks the climax of a fire fighting career which began with Kirby's appointment as fireman-engineer in 1908. After ten years as a private in charge of horse drawn steam pumpers, Kirby was promoted to the rank of Lieutenant; and in less than two years more, he was advanced to the rank of Captain. He became District Chief in 1925. Until his present advancement all of Kirby's promotions have resulted from competitive civil service examinations.

Advice to Firemen

In talking to two newly appointed firemen, Frank J. Healy, Chairman of the Board, Waterbury, Conn., said:

"The minute you accept the badge, you are no longer an individual, but a public servant devoted to the safety of the public. You must regulate your own life and those of your family to live within your salary. You must submit to the discipline of the department. If you make a mistake, you bring discredit not only to the department, but those who sponsored your appointment."

8 ALARMS SENT FOR STOCKYARD FIRE ON PITTSBURGH, PA., ISLAND

Firemen Hampered by Animals Released from Pens— First Alarm Delayed as Employees Tried to Fight Fire

By WILLIAM E. PATTERSON

A SPECTACULAR eight-alarm night fire, the first major fire to visit Pittsburgh for many months, roared through the Pittsburgh Union Stock Yards on Herrs Island, early one morning this fall, leaving two-thirds of the large yards in ruins, and causing an estimated loss of $150,000.

As the flames roared out of control, 600 of the 850 steers, 200 hogs and 800 sheep, all that were left from Monday's sale broke from their corrals as stock yards employes opened the gates of many of the pens. The animals stampeded to the edge of the island along the Allegheny River, hampering firemen in their work.

Firemen turned their streams on the panic stricken animals, driving them to the upper end of the island away from the raging flames, where stock yards employers rounded them up and herded them to safety. Only about ten of the animals were lost in the raging fire.

The spectacular blaze provided an early morning thrill for thousands of persons who crowded the over-looking hill sides and the Allegheny River front.

The blaze started in one of the hay storage bins at the lower end of the stock yards, beneath the Thirty-first Street bridge. It was discovered at about 1:30 a. m.

When the first companies arrived in command of Acting Battalion Chief, Bernard J. Hawthorne, the firemen found a large section of the cattle pens, about two-hundred feet square, a mass of flames, which were leaping into the air many feet above the bridge and rapidly spreading eastward toward the upper end of the yards.

The great headway made by the fire was evidently due to a delayed alarm. Acting Battalion Chief Hawthorne found quite a large number of empty fire extinguishers laying about the yards after he arrived, plainly indicating that the employes of the stock yards had tried to extinguish the fire before sending an alarm to the Fire Department.

The first alarm was sent in at 1:40 a. m. This was quickly followed by the second at 1:49, the third at 1:50, the fourth at 2:17, the fifth at 2:18, the sixth at 3:01, the seventh at 3.20 and the eighth at 3:23 a. m.

The eight alarms brought nineteen engine companies and four truck companies, with a manual force of 133 firemen, nineteen pumpers, one deluge combination hose, turret and water tower wagon, two combination hose and turret wagons, two aerial trucks and two city service trucks, with the Chief of Department, Nicholas A. Phelan, and Deputy Chief Edward J. Kerr answering on the second alarm. As soon as he arrived on the scene, Chief Phelan took personal charge of the fire fighting.

While no city fire hydrants are maintained by the City on the island, the city furnishes the water supply to the island from a 24-inch water main on East Ohio

General View of the Burning Ruins of Stockyard

Firemen saved the large concrete building shown in upper left of photograph. Long lines had to be laid as many hydrants had to be abandoned.

Street which connects to an eight-inch fire main running the entire length of the island supplying approximately thirty private fire hydrants with single and double 2½-inch outlets. Quite a number of these hydrants located through the stock yards section of the island were put out of service at the early stage of the fire. Firemen had to stretch long lines of hose, relaying some of the lines through two or more pumpers in order to reach some sections of the burning stock pens, with as many as fifty sections of hose in siamesed lines.

Between fighting the fire, and driving the stampeding animals, the firemen had a hard, weary desperate battle.

Herrs Island, a part of Pittsburgh, located on the Allegheny River in the center of an extensive manufacturing and warehouse district, is approximately one mile long and five hundred feet wide at its widest point and is occupied entirely by the buildings of the Pittsburgh Provision and Packing Company, Armour & Co., the Pittsburgh Melting Company, and the stock yards, with an extensive network of railroad tracks.

Fire Fighters Parachute to Blaze

Fire fighters may soon be dropped by parachutes to the scene of a forest fire. Tests have been conducted in some of the National Forests on this latest method of transporting men where they are needed. This method enables the fire fighters to go to the scene of a small fire and bring it under control before it has a chance to assume devastating proportions.

The men eventually selected for this job will be experienced fire fighters now in the employ of the Forest Service. The equipment which each man will carry will weigh about fifty or sixty pounds and will include food for two days, compass, maps, fire fighting tools, a small radio, and well padded suits to protect the wearer against injury when he lands.

Airplane Used to Fight Forest Fire

An airplane demonstrated its value in directing fire-fighters, when a serious fire broke out above Umbagog Lake in New Hampshire. The plane flew around the fire at intervals, charting the extent of the fire and its probable course. Several landings were made to confer with the men. Five hundred acres of timberland were lost.

An Omission

In the story of the first annual fire school by Art Espey, that was held at State College, Pa., August 28 to September 1, the name of Battalion Chief George Ferrier was inadvertently omitted.

Chief Ferrier, instructor of the Philadelphia Fire Department, acted as co-instructor in the Class of Firemanship with George Cartwright of Johnstown, Pa. One of the finest contributions to the success of the fire school was Chief Ferrier's illustrated lecture covering actual experiences in fighting fires in Philadelphia.

Trucks Crash on Answering Call

Responding to a small blaze in the Stockton Iron Works, Stockton, California, two trucks became involved in a serious accident that sent nine to the hospital. The two trucks involved, a heavy ladder truck traveling west and a heavy combination engine traveling north, met with such force that the truck completely turned around and overturned. The truck was demolished when the frame folded under the impact; the combination is undergoing repairs.

The inability of the drivers, each with his siren operating, to hear the approach of the other machine was the probable cause. The men in their regular positions on the sides of both trucks were hurled in all directions. First aid training of the department made a good showing after the accident. The presence of both the police ambulance and the fire department's rescue squad made it possible to remove the injured firemen to the hospital without delay.

The blaze to which these trucks were racing was extinguished by the employees with little loss. The damage to the machines will cost the city about $20,000 for replacement and repairs.

Firemen's Legislation Expected

The Kentucky Firemen's Association will present a bill in the January session of the State Legislature for a permanent firemen's training, and a bill for better protection to apparatus drivers on the highways, while they are making a run to a fire. A special appropriation has been made by the Governor for firemen's training which will run until the new act is passed in the legislature.

Two Objects Cannot Occupy the Same Space at the Same Time

Upper, a close-up of the combination pumper showing the damage inflicted. Lower, the two pieces of apparatus, just after the accident.

Our inquiring reporter overhauls the firemanic news of the day

Hot Off the Tape

Even without war news, we've got a load of "Flashes." First, New York City is asking for $17,487,540 for a 4-year fire program. . . . Sailors, aided by Brooklyn Navy Yard Fire Dept. and New York City Braves stopped fire in wooden planking on main deck of new 10,000-ton cruiser Helena. . . . 1,000 Japanese firemen couldn't save famous Temple, built in 951 A. D. in Kyota (Japan). . . . When Frank Dolezal, 52, suspected "torso slayer," Cleveland (O.), hanged himself, Cleveland Braves worked 45 minutes with inhalator to resuscitate him, unavailingly. . . . After another serious tieup in Long Island R. R. tubes under East River (N. Y. C.) due to fire in signal box, the R. R. is now gonna install "fireproof" signals. . . . State Police of N. J. sent out radio alarm warning Braves when 8-foot balloon loaded with explosive gas broke loose from mooring near Asbury Park (N. J.) drifted over several cities at 1,000 feet. . . . Orchids to Gus Kettler, 52-year-old New York City fireman who died from burns suffered when he went to aid of a tourist in burning car. . . . When Gus Bleven's hen house (Portales, N. M.) became infested with mites, he used a supposed "inflammable" mite killer. He killed mites—but burned down structure. . . . While Andrews Wyman, Pittsfield (Mass.) orated on "fire prevention," his talk was "illustrated" when rubbish across street blazed up, giving firemen a workout. . . . In London (Eng.) hundreds of troops were called out Aug. 31 by alarm sirens to fight fire caused by explosion in hangar of "barrage balloon." Suppose we can expect lota this kind of disasters, now. . . . Fire "plugs" in front of schools in Lorain (O.) will be painted in traditional "school colors" instead of usual F. D. red. . . . Mayor Wm. Kane, Woburn (Mass.), who's often gotten himself and firemen on front page by his "going's on," now rails against fire insurance folk because "rates" don't come down when fire losses do. . . . Greenwood (S. C.) now charges property owners outside city for assistance of local Braves. . . . Harold Irving, Brooklyn (N. Y.), dismissed from F. D., "got even" by turning in false alarms. Ten days in jail. . . . Texas got new cut in fire insurance rates Sept. 1. . . . New York University offers courses to aspirants for firemen jobs. . . . When a dynamite truck exploded on highway near Holden (Me.) five were killed, driver, his wife and three children blown to bits. . . . New York City police have a new system to provide emergency current when power supply fails. Every city should safeguard fire and police departments same way. . . When bus and fire apparatus, responding to false alarm, crashed in Philadelphia (Pa.) 29 persons were injured—23 passengers on bus, 6 firemen. Three of latter in serious condition. . . . Responding to false alarm in New York City, a fireman driving a Chief's car, and girl were injured in collision. . . . Responding to auto fire, four firemen of Eng. Co. 60, Bronx (N. Y. C.), were thrown off truck when it was sideswiped by auto. . . . Four brothers and another man were killed in the Bronx (N. Y. C.) by explosion in garage; were cleaning floor with benzine. . . . Four more C. C. C. youths died in fire near Ogden (Utah). . . . Victoria (B. C.) hunted man blamed for 19 grain fires. Seems he traveled on a bicycle to set fire to after fire. . . . Eng. 283, Brooklyn (N. Y.), members of which are still searching "murderer" of their pet Dalmatian dog, have a new canine mascot. . . . In Philadelphia (Pa.) well dressed woman, about 25, entered service station rest-room poured gasoline over self, set it off—and died. . . . Transformed into human torch when his clothes were set afire by ignited gasoline, Phillip Belansky, 28, a plumber, raced to Eng. Co. 22, Bronx (N. Y. C.), where Lieut. T. Quinn wrapped him in coat, extinguished fire before he was fatally burned. . . . Shampoo mixture exploded in hair specialist's shop, N. Y. C., injuring three, one critically, giving Braves a job. . . . Vial of sulphuric acid, used in refilling extinguisher, exploded, injuring two firemen in H. & L. Co. 13's quarters (N. Y. F. D.)

"DER TAG" For a Chief

Half a dozen correspondents sent us that one about Patrolman Joseph Doninski of New Haven (Conn.), who "seen his duty and done it"—and Fire Chief Lawrence E. Rief the "victim." It develops that the Patrolman tagged the official automobile of the Chief for—of all things—being parked in front of a fire hydrant.

A "Ripley"

Believe it or not, Harry Saunders, Kansas City, overlooked one important bet when his house caught fire. "Have you called the fire department?" a passing motorist shouted as Saunders played water through the second-story windows with a garden hose. "No," replied Saunders, "but it might be a good idea." The stranger phoned the Braves, who held loss at $3,000.

"Hot" Styles in Dear Ol' Lunnon

England's heat wave in early June set fire to a young woman's straw hat in Hyde Park. Miss Phyllis Proctor was strolling through park when a gent saw smoke curling up from her headgear. He snatched it off. "How dare you!" screamed Phyllis. Seems a small glass ornament on lid acted as burning glass, touching off straw. After seeing some of our present day hats we're all for hot weather and glass ornaments on 'em!

Chief G. M. Kellogg Retires

Chief George M. Kellogg, of the Sioux City, Iowa, Fire Department has tendered his resignation as Chief, to take effect on November 15. The oldest active Fire Chief in service in this country, Chief Kellogg has been the recipient of just about every honor available in the service.

He is the oldest active member of the International Association of Fire Chiefs,

Chief G. M. Kellogg

and was made President Emeritus of the organization at its Oklahoma City conference in 1937.

Chief Kellogg celebrated his fiftieth anniversary as Chief at Sioux City on March 17, 1939. He joined the International Association of Fire Chiefs as an active member in 1889, and was elected its President in 1906. He was born in 1861.

Fire Defenses and Insurance Rates

The International City Managers' Association has announced their latest publication, entitled "How Municipal Fire Defenses Affect Insurance Rates." These defenses, which include the fire, water, police and other departments of the city, are graded by the National Board of Fire Underwriters and this manual makes available the summary of the gradings of all cities over 30,000.

It tells how the grading schedule is applied to any municipality, how its fire defenses can be improved, how to reduce fire losses and insurance rates, and other information which will help city officials understand the grading schedule of their city.

BEAUMONT, TEX., CONSTRUCTS FIRE ALARM SENDING SYSTEM

Communication System Between Fire Alarm Headquarters and Fire Stations Built in Department Shops

THE fire alarm dispatching system at Beaumont, Tex., was built for the purpose of instantaneous communication between fire alarm headquarters and all fire stations, and other points of the Fire Department that necessitate the delivery and reception of messages.

The features of the system are:

1. The dispatcher in fire alarm headquarters may communicate with all receiving stations independently or collectively.

2. All sub-stations may intercommunicate vocally with the fire alarm dispatcher, or with any other substation or stations at the discretion of the dispatcher, who may allow this service by the manipulation of one key on the main control desk. This gives the sub-station control of their communication.

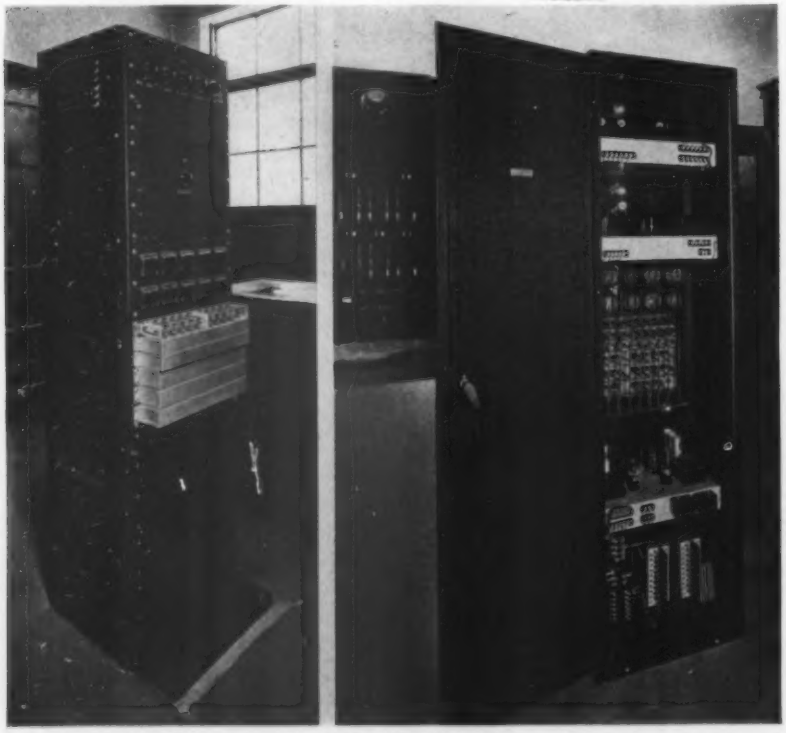
3. All sub-stations may send two independent visual and audible signals to headquarters by means of simplex operation of circuits. This feature is used for answer-back. The pilot light of one of these signals is automatically locked up at fire alarm headquarters subject to restoration by the fire alarm dispatcher. This allows all calls given out by the dispatcher to be confirmed instantaneously by the sub-stations so the dispatcher will have a knowledge of the reception of all dispatches.

4. Remote control of sub-stations is provided in all engine houses, so that control of the sub-station equipment is available from numerous points about the building.

5. A music channel is provided on the central office control panel, so that a radio receiver can be fed into the system, for the purpose of delivering radio programs to any part of the system. In the event that a call is being handled over the system while radio programs are being dispatched, automatic elimination of the radio channel is provided and allows intercommunication. Automatic elimination is also provided, in the event a sub-station is intercommunicating with another sub-station, or with the fire alarm dispatcher, a signal from the dispatcher will supersede anything that may be coming over the system.

6. The system consists essentially of a central office panel, which includes power supply, main amplifier, monitor amplifier, talk-back amplifier, three mixing channels which includes the talk-back channel, the radio channel and the dispatcher's channel. There are five banks of relays, which provide five relays in each sub-station circuit for handling the simplex operation for two distinctive signals and the talk-out and talk-back features. This main panel is under the remote control of the dispatcher, who has, at his operating point, a small key board, which includes the selector and master keys and pilot light indicators and monitor speaker, which monitors everything that goes over the system. The sub-station equipment is a unit which includes power supply, amplifiers for the talk-back and reception features and each has sufficient capacity to handle 10 eight-inch permanent magnet dynamic speakers. The remote control units include microphone and amplifier equipment for the talk-back feature and also two cam type telephone keys for its operation as talk-back amplifier and simplex operation.

Operating the Remote Control Unit
Left, Chief S. D. O'Conor, and right, J. D. Southwell, designer of the system.



Views Showing Details of the Equipment
Left, front view of the central office amplifier and relay switching panel, and right, rear view of the same equipment.

Questions and Answers

NOTE—Readers are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified

Friction Loss

To the Editor:

In the August issue of FIRE ENGINEERING, in answer to a question relative to the feasability of supplying water for a 2½-inch fire hose line from a 1¼-inch water line, you stated that due to the high friction loss in the pipe line, this would not be practicable.

What is the formula for computing friction loss in layouts of this sort?

E. F.

Answer: Friction loss in 1¼-inch pipe for various flows is given below:

Flow in g. p. m.	Loss of Pressure Per 100 Ft.
25	7.2
50	26.0
70	49.0
90	78.0
100	104.0
140	196.0
200	406.0

When you recall that a good fire stream for outside use discharges around 250 gallons per minute, you can appreciate the tremendous friction loss in the 1¼-inch pipe carrying this amount, for with a flow of only 200 gallons per minute, the friction loss is 406 pounds per hundred feet of pipe.

There is no formula for combining the 1¼-inch pipe and 2½-inch hose in solving, for such is an impractical layout. However, from the friction loss figures given above, you will be able to determine the feasibility of any particular layout involving this diameter of pipe and 2½-inch hose.

Fire Department Connection

To the Editor:

Why is the Fire Department connection to an automatic sprinkler system connected behind the main sprinkler valve? If the valve should be accidently closed, then the outside connection is of no value.

I have noticed here that the Fire Department connection passes through two valves, the street valve in the basement and the sprinkler valve. Would it not be practical to have the Fire Department connection ahead of the valve and straight into the sprinkler system? W. M.

Answer: It surely seems improper to have the Fire Department siamese connection behind the main sprinkler valve. In New York, some years ago, such a layout was occasionally found, but today, the only valve between the sprinkler system and the street siamese connection is a check valve. The check valve is expected to remain tight and prevent leakage from the system. As a matter of fact, a drip pipe is attached to the sprinkler system just outside of the check valve, and this pipe is terminated above the floor of the basement of the building. By this means any leakage should be detected at once, and there is no danger of the standpipe system being drained by leakage past the check.

The purpose of the sprinkler system is largely defeated if there is a valve within the building which must first be opened before the fire engine can discharge water into the system.

Placement of Pumpers

To the Editor:

Two second size pumpers are connected in tandem to a hydrant which is capable of giving sufficient water at a reasonable pressure. Would the pressure at the discharge of the second pumper be above the rated pressure? F. E. W.

Answer: The pressure at the discharge of the second pumper will be approximately equal to the sum of the pressures at the two pumpers minus an allowance, probably ten pounds, for friction in connections.

Thus if each pumper were pumping at 250 pounds pressure, the discharge at the outlet of the second engine would be approximately 250 + 250 — 10, or 490 pounds. This applies particularly where centrifugal pumps are used. Where rotary or piston pumps are used, the discharge pressure would be appreciably less.

Water Lift

To the Editor:

How high and in what manner is it practical to send up water on the outside of a building using either a 1,000 or 750 gallon pump and 2½-inch hose? H. H.

Answer: Water may be sent to the highest point of a building by stretching hose up fire escapes or up the face of the building, supporting it every second length with a hose strap.

You can figure approximately how high any engine can deliver water up into a building by remembering that each foot elevation will represent a pressure against the engine of .434 pounds. Thus if water is pumped up 100 feet into a building, the pressure against the engine will be 43.4 pounds.

Allowing 15 pounds per length, approximately, for friction loss in the hose, and further, allowing a nozzle pressure of say 40 pounds, the maximum elevation to which water can be forced can be calculated.

For example, suppose a pumper is able to create a maximum pressure of 300 pounds per square inch. Deduct from this 300 pounds the 40 pounds wanted at the nozzle, and we have available 260 pounds for overcoming friction loss and overcoming back pressure due to the elevation of the hose line.

As the friction loss is stated at 15 pounds per hundred feet, the friction loss per foot will be .15 pounds.

The back pressure is .434 pounds per foot elevation. Thus, these two added together give us .584 pounds for every foot of hose stretched up the face of a building.

As we have 260 pounds available for overcoming back pressure and friction loss, the height to which we can pump water will be 260 ÷ .584, or 450 feet approximately.

Vertical Reach

To the Editor:

What formula is used in solving for high pressure vertical reach of large nozzles? C. E. H.

Answer: The formula for finding the vertical reach of the highest drop from a vertical stream is as follows:

Let J = extreme height in feet to which the average extreme drops of a vertical stream will rise in still air.

h = static head of water in feet acting at the base of play-pipe.

d_1 = diameter of a jet close to nozzle in inches. (For smooth nozzles this is the same as diameter of orifice. For ring nozzles take d_1 as 86 per cent of diameter of orifice.

$$\text{Then } J = h - .00135 \frac{h^2}{d_1}.$$

Pump Pressure

To the Editor:

Is there any possibility of building up too great a pressure in the base of the second pump in the event that the nozzle at the fire is shut off?

O. R. W.

Answer: The second pump, that is, the one nearest the nozzle, would be subjected to the greatest shock if the nozzle on the end of the line were snapped closed. Rotary pumps do not transmit much of the jolt of water hammer to the intake side when a nozzle is closed quickly.

It is possible that damage might be done to the pump casing, even to the extent of cracking it, although most pumps are built with a sufficient factor

of safety to protect against such shocks. With short lines of hose, the pump pressure may jump 100 per cent when the nozzle is snapped closed. On long lines the "give" of the hose tends to dampen the sharpness of the blow.

Nozzle Pressure

To the Editor:

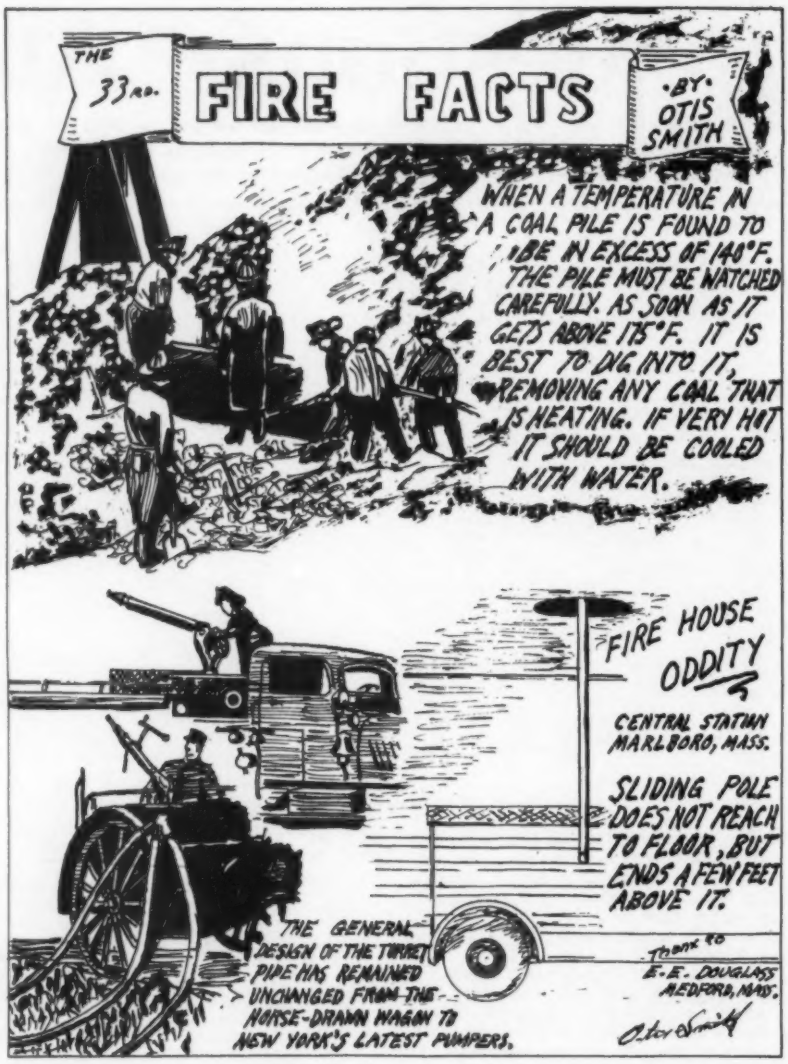
A first size pumper is supplying a line whose nozzle elevation is 100 feet. After using the line for several minutes, the nozzle is closed. We assume that there are no leaks which means no flow. The pump pressure is 200 pounds. What is the pressure at the nozzle? Would it be the same as the engine pressure (200 pounds) or would it be the engine pressure minus the head pressure (200 — 43.4, or 156.6) and why? C. J. W.

Answer: The pressure at the nozzle would be 156.6 pounds. As there is no flow, there is no friction loss. The depth of water in the hose from the nozzle to the engine represents a back pressure of 43.4 pounds. As the engine creates 200 pounds pressure, and as 43.4 pounds of this is needed to maintain the water at a 100 foot elevation, the nozzle pressure will be 200 — 43.4, or 156.6 pounds.

Crash Truck for Airport

Prominently featured at the recent opening of New York City's new airport by Mayor F. H. LaGuardia at North Beach on Flushing Bay, was a new type of crash truck designed especially for America's newest and largest municipal field. The truck was designed and built by Walter Kidde & Co. It is known as the Lux Airport Crash Truck and is a Diamond T chassis, rated at 84 hp at 2,800 rpm. It has four speeds forward, with tandom rear axle. Its overall weight is 17,000 pounds, fully equipped and has a governed maximum speed of thirty-five miles per hour. It has a wheel base of 186 inches and an overall length of twenty-six feet. The truck cost $8,542.70.

The fire fighting equipment consists of a battery of ten Lux cylinders, each of 100 pounds carbon dioxide capacity, which are connected to two trunnion-fed hose reels, each reel having 200 feet of one-inch high pressure hose and discharge horns.


THE 33RD.
FIRE FACTS
BY OTIS SMITH
WHEN A TEMPERATURE IN A COAL PILE IS FOUND TO BE IN EXCESS OF 140°F. THE PILE MUST BE WATCHED CAREFULLY. AS SOON AS IT GETS ABOVE 175°F. IT IS BEST TO DIG INTO IT, REMOVING ANY COAL THAT IS HEATING. IF VERY HOT IT SHOULD BE COOLED WITH WATER.
FIRE HOUSE ODDITY
CENTRAL STATION MARLBORO, MASS.
SLIDING POLE DOES NOT REACH TO FLOOR, BUT ENDS A FEW FEET ABOVE IT.
THE GENERAL DESIGN OF THE TURRET PIPE HAS REMAINED UNCHANGED FROM THE HORSE-DRAWN WAGON TO NEW YORK'S LATEST PUMPERS.
Thanx to E. E. DOUGLASS BEDFORD, MASS.

In addition, the truck carries six fifteen-pound portable carbon dioxide extinguishers and two Kidde 2½-gallon pressure expelled water extinguishers. Other equipment consists of a Gar Wood hoist and winch of 5,000 pounds capacity with a safety factor of four. Also, there is a 300-pound towing cable and a fifty-foot cable with a four-prong grappling hook which can be used for grappling and towing burning planes out of danger areas.

The airport and its equipment are under the administrative jurisdiction of the Department of Docks. The Fire Department has assigned from its four rescue companies, seven firemen to the airport, with two firemen to each eight-hour shift and one fireman for relief. This assignment may only be temporary until Dock Department employees are schooled in handling the fire fighting equipment. The Fire Department does not use the term "crash truck" but prefers to call the vehicle "Airport Emergency Truck."

WM. JEROME DALY

New Type Crash Truck in Service at North Beach Airport

Fire Protection Furthered

As a result of two disastrous fires, resulting from the lack of water, in the village of South Vienna, O., excavation is being made for the placing of five 12,000-gallon tanks to be used in fire fighting. A new fire truck has been purchased which has a pumping capacity of 350 gallons per minute. The apparatus also carries a 400-gallon booster tank and two hose reels.

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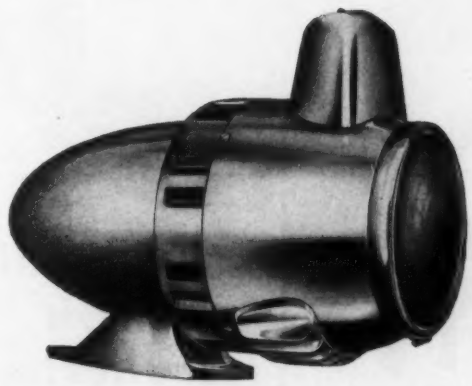

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BRAXMAR BADGES

Standard for Over Sixty Years

By William Paul Babcock

"Unaccustomed as I Am to Public Speaking"

I was glad to do my very best in response to an invitation from the officers of BEACON HOSE CO., No. 1, BEACON, N. Y., to be their banquet speaker in celebration of their fifty-third anniversary, on October 21.

It seems here is a group of volunteer firemen who enjoy reading FIRE ENGINEERING from cover to cover and as a result are very well informed.

And, finding that one of the volunteer writers in this great journal resides so near their home town, they thought it only natural that he would like to speak to them on his pet hobby, and give them an opportunity to meet him in person.

I am afraid the pleasure was all mine, because I had been too busy to do more than throw some words and thoughts together and had no time to practice my speech, and they must have suffered greatly, while I had a swell feed prepared by the ladies' auxiliary and enjoyed the special entertainment.

However, I believe I did plant a seed which may grow into a salvage corps some day, and it was nice knowing that some one is interested in the subject.

* * *

Hearing from a friend down Boston way recently, with special mention of "The Protectives" as the salvage corps is called there, recalls an occurrence which happened during that trip I made to Maine about eight years ago, and which points a very good lesson for all beginners.

My very dear friend, Capt. Sid Johnston, knowing of my anticipated trip, told me to go in and meet his old time friend Capt. Abbott of the Protectives, and I marched boldly up to the Watch Desk and handed in my card, which then bore the information that I was a fire insurance inspector in the Big Town.

Feeling this was not sufficient introduction, I appended the legend: "Captain, Nyack Fire Patrol."

When I was finally admitted to The Presence, a great big man ogled me and demanded "What can I do for you?" "Well," I responded shyly, thoroughly scared, "Our mutual friend Capt. Johnston said I could learn something about salvage work if I called on you." "But," he replied, "according to your card I'm afraid there isn't much I can teach you." And here's where I saved my life by happily replying, "Oh, I don't know it all, yet." Whereupon I was invited to sit down with the admonition "Then there's hope for you." And I did get some real good inside dope from Capt. Abbott, and he went out of his way to see that I got an eyeful of everything firemanic in his city, for he sent me with a letter of introduction to the Chief of the Boston F. D., who assigned car and driver to my disposal and I went everywhere and saw everything, even though the city was right in the midst of the Sacco-Vanzetti mess, and was specifically the day on which all municipal plants were supposed to be bombed and no visitors were allowed.

So, you see, boys, it is well always to play a little dumb.

And I'm trying to find out through by Boston correspondent, whether Capt. Abbott is still in harness.

* * *

As the little dog said when he saw parking-meter stanchions being placed along Nyack's sidewalks, "Happy days are here again!" and that means that Captain (oh, oh!) I mean Assistant Superintendent (darn it that's too long—I'm still going to call him Captain Bill) Cashman has resumed his courses at the New York Fire Patrol Training School. I understand the first crew to enroll is from a little volunteer fire department of Valhalla (no relation to the operatic one), Westchester County, New York.

In other words, those boys, unlike many unfortunate volunteer firemen I know intimately, don't think they KNOW IT ALL!

Fire Causes $200,000 Loss

The historic little town of Manteo, North Carolina, was the scene of a $200,000 fire which swept away about twenty-one stores in the town's business district. According to reports, the blaze started from a short circuit in the wharf office of the Standard Oil Company. Fed by oil and gasoline soaked timbers, the fire rapidly spread to other buildings in the neighborhood.

The blaze menaced the entire community before it could be brought under control, with aid from Norfolk, Va., and Elizabeth City, N. C. An American-La France of the new 500 series made the run of 108 miles from Norfolk to Manteo in response to the call for assistance. In the total time of two hours and sixteen minutes, they made the run, had water on the fire, and had put through a long distance call to Norfolk.

This fire was the only one of its type that Manteo has known, with the exception of the fire in 1930 which caused about $15,000 in property damage.

Safety Net for Towers

Des Moines, Ia., has recently completed a drilltower at the central fire station, and one of the features of the tower is that there is a net which can be raised or lowered to follow the men

Net and Drill Tower

as they climb or descend the wall. The wire rope which supports the frame for the net is connected to the frame through springs to take up some of the shock should an object fall.

A net of similar design has been in service at Wichita, Kans., for a number of years.

Any Old Can Is An Admission Price to the Movies

During the Clean-Up Week Campaign of West Frankfort, Ill., old cans were received as the admission price for children to all local theatres on Saturday morning. The photograph shows some of the cans collected. Chief Alta McGhee is on the apparatus at the right.

Among the Fire Fans

By Otis Smith

The Boston Sparks Association participated in the Fire Prevention Week parade in Boston. The Sparks headed the Second Division of the parade, with a color guard and a band. One hundred Sparks marched in the line. Members constructed a float which took first prize. The float consisted of a miniature house with miniature firemen rushing to the rescue. Several citizens wrote letters of praise to the Sparks for their fine job.

Chief Operator Galway of Boston Fire Alarm spoke at the October 16 meeting of the Sparks Association. He gave an interesting account of what went on in the alarm office during last year's hurricane. During the six hours it lasted, they answered 20,000 telephone calls. There were 255 alarms of fire received and transmitted during that time. There was only one second alarm, in a house on a high hill where the wind was hitting 185 miles per hour. The alarm office is now provided with an arrangement to handle 50,000 calls in six hours, should the need arise.

We have received the latest issue of the *Phoenician News*, organ of San Francisco's Phoenix Society. We note an interesting item on the Larkspur (Cal.) Fire Department. With the profits from their noted and picturesque Larkspur Rose Bowl, they operate their department. Over a period of thirty years, they have spent about $350,000 for equipment and other items, and recently erected a new fire station at a cost of $30,000. It can readily be seen that their open air pavilion is a veritable gold mine.

There are now twenty-nine members in the Phoenix Society. The society may be contacted by writing to Al Fryer, 7 Front St., San Francisco, Cal.

Every city, town, and state from the rock-bound shores of Maine, to the sun-kissed shores of California, boasts of the best fire fan. Connecticut's No. 1 Fan is Henry T. Lynge of Bridgeport. Henry eats, sleeps, and drinks, as the old saying goes, any and all things connected with the fire game. From 1930 to 1932 he was a member of the Board of Fire Commissioners in Bridgeport, and became very popular with the firemen for his personal interest in their welfare. He is the only layman ever to be appointed an Honorary Deputy Chief. His "headquarters" are at No. 7 Station on Rostwick Ave., a few doors from the dyeing and cleaning establishment which he owns.

Box 7 of Dayton, Ohio, met recently. The honored guest on this occasion was Chief Joseph A. Kirby, recently appointed head of the Dayton Fire Department. Richard Vernor of the Western Actuarial Bureau of Chicago gave a splendid fire prevention talk at the meeting. This information is from Mr. Robert C. Anderson, Chief of Box 7.

Thanks to Edward J. Bennett, 36 Westside Rd., Milton, Mass., for that letter on the Sparks parade. Vincent Bolger, 100 Richmond St., Dorchester, Mass., supplies us with all our information on the Boston Sparks. Mr. Bennett also announces that he is interested in trading pictures of apparatus. Those interested in trading may contact him at the above address.

We learn that Gordon Mullins, well known buff, is still traveling the country and looking into the Fire Department situation. Gordon has recently visited Buffalo, Detroit, and St. Louis. Since so many have exhibited an interest in Gordon's offer to trade photographs, we will learn his new address and print it in this column next month. He is due in Baltimore, Md., early this month and we expect to have a bit of a reunion at that time.

Buffs in the Baltimore area may be interested in the following information on the Baltimore Fire Department. At eight or so every Sunday morning (except in inclement weather) all apparatus at the Gay St. house is exercised. This includes operation of water tower, aerial truck, pumper, and hose wagon. Here's your chance to get some swell pictures of Baltimore's biggest apparatus in action.

Thanks to Bill Herries for that picture of North River dock fire. Buffs who have close action shots to trade should contact Herries. He may be reached at P. O. Box 142, Times Square Station, New York, N. Y.

Edward H. Sprangers, 2228 W. Oakdale St., Philadelphia, Pa., sent us a clipping of interest. It shows Chief Ross B. Davis receiving two checks for $1,000 each, from The *Inquirer*, and Mrs. Gustav Ketterer, director of the General Federation of Women's Clubs. The checks are for families of two Philadelphia firemen who were killed in line of duty last month.

This writer is now attending both the Basic and Advance Courses in firemanship offered by the University of Maryland. Chief J. W. Just has charge of the courses, first conceived by the late Prof. R. B. Criswell. These two courses are our favorite form of study.

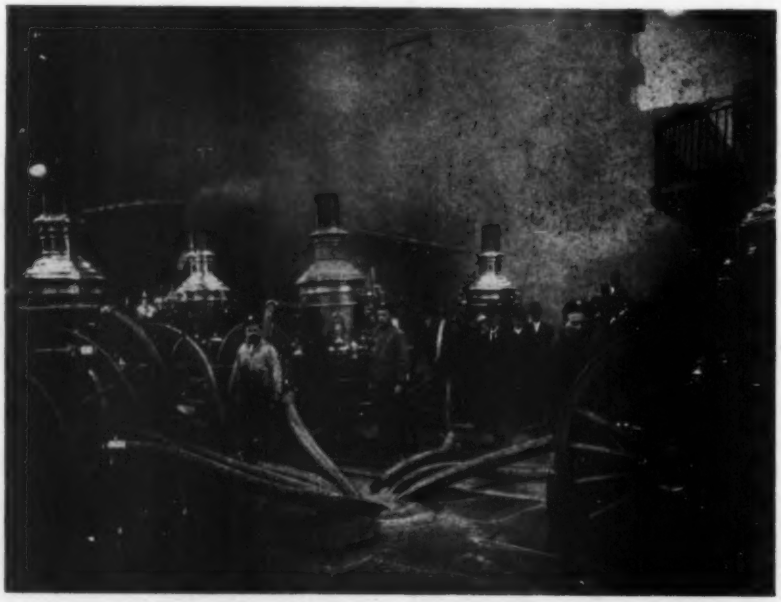
The December issue of this column will close on November 29. Try to have your letters and comments in by that date.

Company Plans Celebration

The Brooklyn Hose Company No. 3, a volunteer company of Lewistown, Pennsylvania, is planning to celebrate paying off the mortgage on their $75,000 fire hall with a banquet and a ball for the members. The fire house contains an apparatus room, a ball room, meeting room, social room and a parlor. At present this company has a 1,000-gallon pumper and in the near future they plan to add a salvage truck and an ambulance. The total membership of the company is about 750.

Will Discontinue Outside Fire Runs

After September 1, 1939, the fire department of Sturgis, Mich., will discontinue making fire runs to the homes of those people who are not subscribers to that protection. It was pointed out that the subscribers who were unable to obtain fire protection, when needed, because the truck was on a run to a non-subscriber's farm, could start proceedings against the city.



Fire Fighting at New Orleans, During the Days of the Steamers

Here is an interesting picture for those who thrilled at the sight of the polished and shiny steamers. It shows seven such units pumping water from a well in the business section of New Orleans, La. Even with the heavy draft, the well would overflow.

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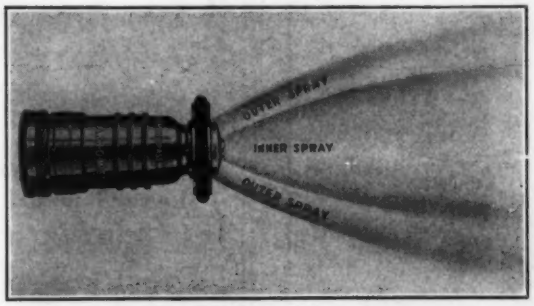
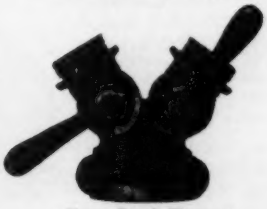


No Leak Nozzle and Playpipe



Akron Gated Siamese

1" - 1¼" - 1½"
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AND that indicates the widespread popularity of the simplest, most rugged, responsive, adjustable and dependable relief valve procurable.

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● This comparatively inexpensive unit "fills in" in many important ways to make any fire department, large or small, better able to do its work.

Within its capacity—150 G.P.M. at 100 lbs. pressure—it will do any work required. Readily attached to any passenger car, it will negotiate many roads which a heavy pumper cannot travel. For outlying or farm fires it is therefore ideal.

Also, you will find it useful for dewatering basements or other "clean-up" work after fires or in other emergencies. The self-priming centrifugal pump cannot clog and is not harmed by dirty water.

Full details will be supplied on request.

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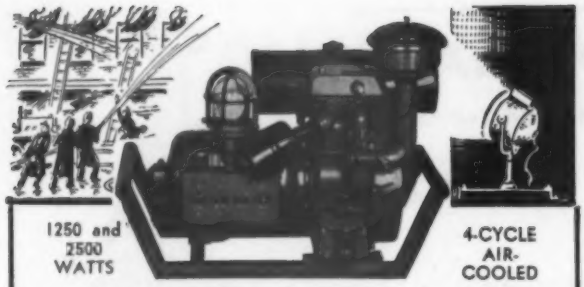

1250 and 2500 WATTS

4-CYCLE AIR-COOLED

"U. S." PORTABLE LIGHT PLANT

This 1250 watt, portable unit has been designed expressly for fire department use. It is small, light, compact and equipped with carriers for easy portability out on the job. Air-cooled 4-cycle engine 2⅝" bore x 2⅝" stroke. 2.4 H.P. 2 gallon fuel tank. Quick starting. Also 2500 watt size, same design.

We are builders of the world's most complete line of Electric Plants. In all parts of the world —arctic expeditions or tropical plantations — U. S. plants have proved their steadfast dependability. And the reason: "U. S." generating sets are designed to meet the conditions under which they will operate.

LARGER SIZES

Larger sizes are available. Illustration below is 5 KW 4-cylinder Portable Unit. Automatic remote control. Write for complete information.

Also automatic emergency units for alarm systems.

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Oshkosh, Wis.

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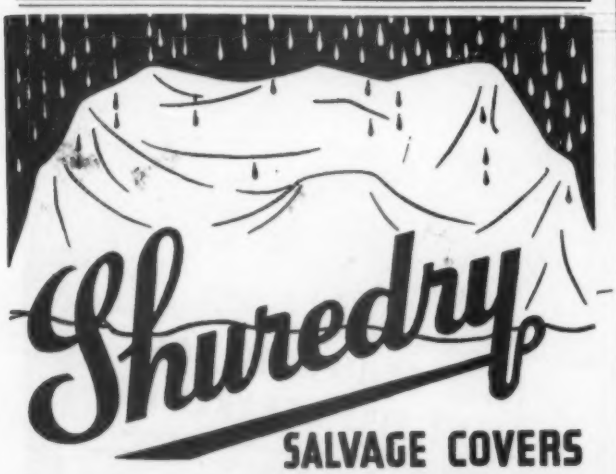
SPECIFY HALE

PUMPING UNITS 20 TO 750 GPM

PUMPING UNITS HAVE A DEFINITE PLACE IN FIRE FIGHTING. INVESTIGATE THEIR POSSIBILITIES.

Write today for the Catalog and Folders on the complete line of Hale Pumps.

HALE FIRE PUMP COMPANY
CONSHOHOCKEN, PA.



Shuredry SALVAGE COVERS

Reduce WATER DAMAGE & INSURANCE RATES

Progressive Fire Chiefs everywhere recognize the necessity of improved salvage work if they are to better their records. Shuredry Salvage Covers have been used to illustrate salvage talks by leading Fire Chiefs at many conventions. They have been recommended by these practical men in service for dependability, efficiency and real economy to the department. Easy to handle and to spread, they will not crack when folded or stored. They do not sweat and are chemically treated against mildew.

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Fulton Bag & Cotton Mills
Manufacturers Since 1870
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MINNEAPOLIS NEW YORK NEW ORLEANS KANSAS CITY, KAN

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, AND MARCH 3, 1933, OF FIRE ENGINEERING, published monthly at New York, N. Y., for Oct. 1, 1939.

State of New York } ss.:
County of New York }

Before me, a Notary Public, in and for the State and county aforesaid, personally appeared I. H. Case, who, having been duly sworn according to law, deposes and says that he is the business manager of FIRE ENGINEERING and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, to wit:

1. That the names and address of the publisher, editor, managing editor, and business managers are: Publisher, Case-Shepperd-Mann Publishing Corp., 24 West 40th Street, New York, N. Y.; Editor, Fred Shepperd, 24 West 40th Street, New York, N. Y.; Managing Editor, Fred Shepperd, 24 West 40th Street, New York, N. Y.; Business Manager, I. H. Case, 24 West 40th Street, New York, N. Y.

2. That the owner is: Case-Shepperd-Mann Publishing Corp., 24 West 40th Street, New York, N. Y.; I. H. Case, 24 West 40th Street, New York, N. Y.; Fred Shepperd, 24 West 40th Street, New York, N. Y.; Karl M. Mann, 24 West 40th Street, New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

I. H. CASE,
Business Manager.

Sworn to and subscribed before me this 2nd day of October, 1939.
[Seal] WILLIAM H. TOPHAM,
(My commission expires March 30, 1941) Notary Public.

Correspondence

Make the Public More Fire-Fighting-Equipment Minded

To the Editor:

It is indeed encouraging to see the major fire apparatus industries staging a major comeback which is evidenced by the advertisements that are carried in your journal. You might be interested to know that in the early stages of federal spending, the writer devoted considerable time attempting to get the various government units to include fire-fighting apparatus in their set-up. It seems so strange that they would furnish part of the funds for complete water system and then not one cent for fire-fighting equipment. Eventually this was put through and I am advised from the various fire-fighting equipment manufacturers, some very nice sales have resulted. It is unfortunate that it was not done earlier in the game and thus have helped many of the smaller communities.

The recent editorial on portable lighting equipment for fire departments was very much in order and anyone at all familiar with the problems of any Fire Department can fully appreciate what an important part the portable lighting units play. The writer, when serving as a member of the City Council from 1935 to 1938, pioneered for portable lights the first year in office, but they were not purchased until two years later. We now have two Home-Lite units and they certainly have paid for themselves long ago.

If more of the purchasing of the equipment would be left to the Chiefs, no doubt the community would be better served, but unfortunately in many cities other parties have the final say so and their knowledge of the correct type of fire-fighting equipment in a good many cases is limited.

In the four years that the writer served on the City Council, from '35 to '38, at the time we took office, the last fire pumper that had been purchased was in 1929. The rest of the pumpers were all 750-gallon capacity A.F. and were purchased in '17 and '18. The writer worked on the theory that all of the pumpers had been bought within practically a two-year period and, while they had given unusually good service, newer equipment, with more speed and higher rated engine and pumper capacity should be purchased. It would have been a good plan to buy one new piece of equipment each year and this way the outlay would not have been so great. After a number of years of service, the pumpers would not all pass out at one time.

During these four years but one piece of fire apparatus was bought and that consisted of a ladder service truck. However, to show you the difference, the Board of Works replaced practically every service truck, dump truck and garbage truck with new equipment in that four-year period, and also purchased a new street sweeper. The strange thing about the matter is that a department with equipment that renders the service of protecting lives and property can get along with apparatus from fifteen to twenty-five years old, but dump trucks that haul nothing but refuse must be '38 and '39 models.

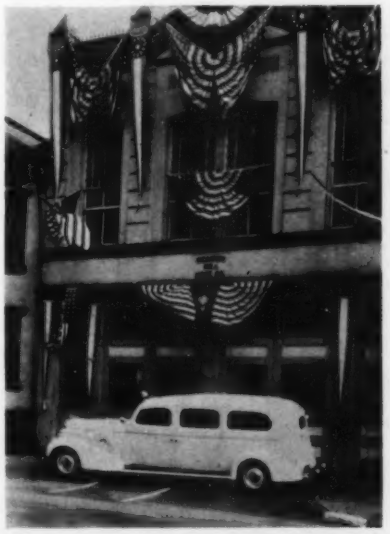
In looking over our set-up of fire-fighting equipment, including pumpers and service ladder trucks and aerials, I know that the number of years of service that they have rendered makes them the cheapest piece of equipment that the city has. In other words, its yearly depreciation is about five per cent and even less in some cases, whereas the life of an average dump truck would be from three to four years.

No doubt you have noticed this in other cities, but it has been so apparent to me in my home town that I would like to see such situations corrected, and in some manner have the public become more fire-fighting-equipment minded.

With kindest regards, I am

Very truly yours,

JOHN A. KOCH,
1108 N. Third Avenue,
Evansville, Ind.



Double Anniversary for Reading Hose Company

The department ambulance of the Reading Hose Company, Reading, Pa., has observed its second anniversary and the company has recently marked its 52nd year of service. The ambulance vehicle, which is free to the people of the city, is air conditioned. Fire calls are divided so that half are responded to by this company ambulance and the other half by the Junior Fire Company, which also provides free ambulance service

Volunteer Drill Team

To the Editor:

In the August issue there was a very interesting story about the San Francisco Department Drill Team.

Certainly their drill team should make them well and favorably known, and it is a very healthy and "peppy" activity.

I am not sure what the author meant, "this being the 'only' such team, whether of paid or volunteer departments." As to the former I do not know, but as to the latter, I must correct him, for I was a proud member of the Highland Hose Co. No. 5 drill team, of Nyack, N. Y., more than thirty-five years ago and an eager aspirant for that honor before.

This outfit became quite famous in this area, and is still going strong.

Yours cordially,

WM. PAUL BABCOCK,
Nyack, N. Y.

Ohio Volunteers Convene

The first annual convention of the Ohio State Volunteer Firemen's Association was held at Mt. Vernon, Ohio.

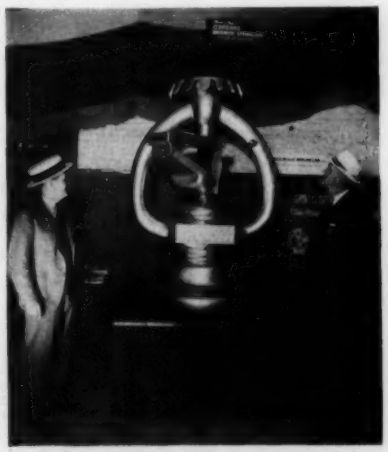
The new officers are Chief T. L. Clossear, Yorkville, President; Chief L. R. Johnson, Fairfield, First Vice-President; Chief R. M. Clark, Kent, Second Vice-President; Chester Hamilton, Willoughby, Third Vice-President; Chief Sid Wellock, Coventry Township, Secretary, and Chief J. A. Falkner, South Euclid, Treasurer.

Capt. A. L. Headlough, Akron; Lieut. Edgar Ellis, Lorain, and Lieut. Stanley Kostohris, Cleveland, were endorsed as firemen's instructors and their names will be presented to the State Department of Education.

Fire Service School Building Dedicated

The new Fire Service Training Building of the Oklahoma A. and M. College was dedicated recently on the campus of that institution. The presentation speech was given by the President of the Board of Agriculture of the college, and the acceptance of the building was made by Henry G. Bennett, President of the Oklahoma State Firemen's Association. Following the addresses, a homecoming parade was held.

In the afternoon a drill exhibition was given with Assistant Chief J. J. Lynn, Oklahoma City, in charge. Following this, a football game was played between the New Mexico Aggies and Oklahoma A. and M.



Mottesheard Inspects Sprinkler

At the I. A. F. C. conference at San Francisco, the Rockwood Sprinkler Company had on display a huge model of a sprinkler head. The picture above shows Retiring I. A. F. C. President, Roy E. Mottesheard inspecting it. At the left is President W. J. Carroll, of the Rockwood Co.

Registration at I. A. F. C. Convention

(Concluded from October Issue)

Arizona

G. L. Simpson, Asst. Chief, Phoenix
J. C. Sievert, Asst. Chief, Tucson

California

A. F. Brown, Alameda
Edward F. Patterson, Alameda
H. P. Bowhay, State Rangers, Bakersfield
Carl L. Hawthorne, Master Mechanic, Beverly Hills
Paul S. Mercurio, Captain, Carmel
William Hurley, Asst. Chief, Crockett
William Birch, Asst. Chief, M.G.M. Studio, Culver City
Herb H. Shiels, Cosmos Valve Co., Culver City
James R. Kilkenny, Asst. Chief, Dixon
R. R. Gordon, Special Agt., Natl. Board of Fire Underwriters, Fresno
J. S. Steinhauer, State Instructor of Fire Training, Fresno
J. I. Tufts, Chief Fire Alarm Operator, Fresno
E. Celin, Engineer, Fort Bragg
Harold G. Kraus, Engineer, Fort Bragg
D. W. Claiborne, Ex-Captain, Los Angeles
John H. Colton, Engineer, Natl. Board of Fire Underwriters, Los Angeles
Dick Cornell, Mack Truck Co., Los Angeles
T. B. Doherty, American LaFrance Foamite Corp., Los Angeles
Joseph L. Gowell, Batt. Chief, Los Angeles
Bob Grace, Pioneer Rubber Mills, Los Angeles
Fred S. Hirsch, The Seagrave Corp., Los Angeles.
William W. Hirsch, Los Angeles
J. B. Hughey, Los Angeles
John A. Hunt, Capt., Los Angeles
John J. Lawton, Los Angeles
F. B. Philbrick, Dist. Manager, The Gamewell Co., Los Angeles
Martin Phillips, Fabric Fire Hose Co., Los Angeles
W. E. Powelson, Mech. Equip. Engineer, Los Angeles
W. W. Tebbetts, Captain, Fire College, Los Angeles
Herbert G. Ufer, Western Supt., Underwriters Laboratories, Inc., Los Angeles
Edward J. Demezzi, Asst. Chief, Mt. View
D. B. Bardell, F. A. B. Mfg. Co., Oakland
William H. McGrath, Asst. Chief Retired, Oakland
William Schlossberg, Batt. Chief, Pasadena
W. E. Blackwell, Deputy Chief, Piedmont
George P. Nicolas, Commissioner, Portola
Wilbur S. Rowse, Captain, Portola
Earl Badger, 1st Asst. Chief, Red Bluff
L. W. Fowler, Asst. Chief, Redwood City
H. J. Schmidt, Asst. Chief, Richmond
Melvin Collins, Asst. Chief, Rio Vista
W. E. Gailey, Capt., Rio Vista
C. P. Meussdorffer, C. A. M. Mfg. Co., Ross
Elmer B. Anderson, Capt., Salinas
August W. Boothby, Batt. Chief, Sacramento
James Calvert, Asst. Chief, Sacramento
H. A. Dahringer, Engineer, Sacramento
L. C. Moore, Sacramento
E. C. Adams, Engineer, Bd. of Fire Underwriters of the Pacific, San Francisco
Frank J. Agnew, Fireman's Fund Ins. Co., San Francisco
Robert E. Andrews, Natl. Board of Fire Underwriters, San Francisco
M. B. Anfenger, Standard Oil Co., San Francisco
John J. Barrett, Asst. State Fire Marshal, San Francisco
E. M. Blanford, Natl. Board of Fire Underwriters, San Francisco
Fred J. Bowlen, Batt. Chief, San Francisco
George F. Brown, Capt., San Francisco
Loren S. Bush, Chief Engineer, Bd. of Fire Underwriters of the Pacific, San Francisco
Edward P. Carries, Vice President, Fiero Ins. Co., San Francisco
H. T. Chrystal, Pioneer Rubber Mills, San Francisco
Edward V. Comber, Battalion Chief, San Francisco
C. J. Conroy, Battalion Chief, San Francisco
L. J. Cosgrove, Sales Manager, Quaker City Rubber Co., San Francisco
Bert H. Dever, Batt. Chief, San Francisco
Al Fryer, Rockwood Sprinkler Co., San Francisco
Willis E. Gallatin, Drill Master, San Francisco
A. J. Galli, Asst. Chief, San Francisco
L. R. Givens, Underwriters Laboratories, San Francisco
Sylvanus C. Farnham III, San Francisco
M. J. Flaherty, Batt. Chief, San Francisco
P. J. Graves, American Rubber Mfg. Co., San Francisco
C. C. Hannah, Vice-President, Firemen's Ins. Co., San Francisco
A. N. Johanson, The Gamewell Co., San Francisco
Martin J. Kearne, 1st Asst. Chief, San Francisco
Kenneth Keene, Assoc. Engr., San Francisco
Thomas J. Keohane, Batt. Chief, San Francisco
T. E. Kerney, Batt. Chief, San Francisco
Carl Kruger, Batt. Chief, San Francisco
R. J. Larrabee, Underwriters Laboratories, San Francisco
Allen Matlock, Batt. Chief, San Francisco
Charles McCarthy, San Francisco
Edward V. Mills, Controller, Firemen's Fund Ins. Co., San Francisco
George H. Murray, Battalion Chief, San Francisco
Sid Neuman, Sid Neuman Co., San Francisco
Everett M. Northup, Insurance Engineer, San Francisco
Al. J. O'Donnell, Asst. Chief, San Francisco
Edw. D. O'Neil, Batt. Chief, San Francisco
Robert St. John Orr, Sales Mgr., Western Fire Equip. Co., San Francisco
Charles R. Page, Pres., Fireman's Ins. Co., San Francisco
W. Stanley Pearce, Secretary, Firemen's Fund Ins. Co., San Francisco
Herb Raines, National Board of Fire Underwriters, San Francisco
Arthur A. Ross, Engineer, Board of Fire Underwriters of the Pacific, San Francisco
R. L. Rowley, Fire Protection Engineer, San Francisco
Frank J. Ryno, Underwriters Laboratories, Inc., San Francisco
George F. Schaefer, Batt. Chief, San Francisco
R. Schubert, Batt. Chief, San Francisco
Richard H. Selig, San Francisco
R. C. Stange, National Board of Fire Underwriters, San Francisco
Theodore Trivett, Captain, Fire Prevention Bureau, San Francisco
William Van Dervort, Captain, San Francisco
Edward P. Walsh, San Francisco
Charles A. Sievers, Asst. Chief, Santa Monica
Hugh E. Long, American Fire Equip Co., Ukiah

Colorado

Leslie L. Shaw, Master Mechanic, Colorado Springs
Harry E. Whitcomb, Captain, Pueblo

Connecticut

Joe Ringers, Sales Manager, Fabric Fire Hose, Sandy Hook

District of Columbia

Gorge J. Richardson, Secretary, International Assn. of Fire Fighters, Washington
W. W. Withers, American LaFrance & Foamite Corp., Washington

Idaho

R. C. Stevenson, Manager Idaho Surveying & Rating Bureau, Boise
E. J. Bauman, Lewiston Furniture Co., Lewiston

Illinois

W. T. Bretherton, The Pyle National Co., Chicago
M. J. Carlson, Milkaukee Railroad, Chicago
Father John F. Coleman, Chaplain Fire Ins. Patrol, Chicago
James A. Flynn, President, Potter Mfg. Corp., Chicago
James M. Gleason, Supt. of Equipment, Chicago
Clarence Goldsmith, Asst. Chief Engineer National Board of Fire Underwriters, Chicago
Frank F. Stover, The Gamewell Company, Chicago
E. C. Watson, American LaFrance & Foamite Corp., Chicago
Edward Bretz, Secretary of F. D., Decatur
Myron M. Lehman, Supt. & Mayor, Elgin

Indiana

Elwood E. Hansen, Sales Manager, Elkhart Brass Mfg. Co., Elkhart
W. H. Glazebrook, Fabric Fire Hose Co., Indianapolis
Pat Hyland, Chief Inspector, Indianapolis
John M. Mahoney, Indianapolis
Clem Smith, State Fire Marshal, Indianapolis

Iowa

Jack R. Vollertsen, Fire Commissioner, Davenport

Kentucky

M. H. Collins, Sales Manager, Rensselaer Valve Co., Louisville

Louisiana

William M. Comegys, Asst. Chief, Shreveport

Massachusetts

Seward Spangenberg, Babson Park
Benjamin M. Ellis, Ellis Fire Appliance Company, Boston
John F. Scully, American Fire Equipment Co., Boston
William J. Reilly, Master Mechanic, Cambridge
Charles N. Page, Medford
V. C. Stanley, President, The Gamewell Company, Newton Upper Falls

Michigan

B. D. Barton, American Marsh Pumps, Inc., Battle Creek
Harry J. Callahan, Detroit
Paxton Mendelssohn, Chr. Fire Prev. Committee, Detroit
E. C. Rumsey, Chief of Apparatus Bureau, Detroit

Minnesota

Steven J. Sande, Supt. of Fire Apparaus, Minneapolis

Mississippi

George E. Bure, Meridian

Missouri

Edward S. Dolan, President, St. Louis Sponge Co., St. Louis

Montana

David S. Thomas, Engineer, Great Falls

New Jersey

Frank R. Fricke, Jr., Fire Commissioner, Elizabeth
Otto Wagner, Fire Commissioner, Elizabeth
R. M. Cadman, Schedule Rating Office, Newark
John B. Keenan, Fire Commissioner, Newark
Maynard A. Laswell, Vice-President, C-O-Two Fire Equip. Co., Newark
John P. Maloney, Pyrene Manufacturing Co., Newark
Edward G. Weed, Pyrene Manufacturing Co., Newark

New York

J. O. Binford, General Sales Mgr., American LaFrance Foamite Corp., Elmira
E. E. O'Neill, American LaFrance Foamite Corp., Elmira
Hubert Walker, American LaFrance Corp., Elmira
Roi B. Woolley, President, Westchester F. C. Emergency Plan, Larchmont
George W. Booth, Naional Board of Fire Underwriters, New York City
H. G. Cavanagh, American District Telegraph Co., New York
Gifford T. Cook, Assistant Headquarters Mgr., I. A. F. C., New York
Joseph H. Green, Genl. Mgr., Eureka Fire Hose Div., New York
Arthur Myers, Atlas Fire Equipment Co., New York
H. T. Sherman, Dictaphone Corp., New York
Nelson Thompson, Sales Manager, Homelite Corp., Port Chester

North Carolina

John Farris, Lieutenant, Gastonia

Ohio

H. B. Spain, President, The Seagrave Corp., Columbus
R. C. Anderson, Buckeye Iron & Brass Co., Dayton
William Schleinitz, President, Dayton Fire Equipment Co., Dayton
Jordan W. Grant, Akron Brass Company, Wooster

Oregon

Batt. Chief Edw. L. Boatright, Exec. Director, Portland Fire College, Portland
R. Canuto, Captain, Portland
W. M. Epperly, Captain, Portland
F. B. Fisher, Captain, Portland
J. R. Giltner, Captain, Portland
H. H. Pomeroy, Special Agt., Natl. Board of Fire Underwriters, Portland
C. C. Ralph, Asst. Chief, Portland
E. A. Taylor, Salem

Pennsylvania

R. A. Cornwall, Kerotest Mfg. Company, Pittsburgh
George L. Seth, Mine Safety Appliances Co., Pittsburgh

Tennessee

Clarence Baugh, Dist. Chief, Memphis
Howard Dunlap, Memphis
M. A. Kallaher, Captain, Memphis
John C. Klinck, Personnel Director F. D., Memphis
B. S. Mattingly, Battalion Chief, Nashville

Texas

A. B. Busbey, Sales Rep., American-LaFrance & Foamite Corp., Dallas
R. W. Joyner, Manager, Eureka Fire Hose Div., Dallas
G. Resweber, Fire Marshal, Houston
Clell Thorpe, Fire & Arson Investigator, Houston

Utah

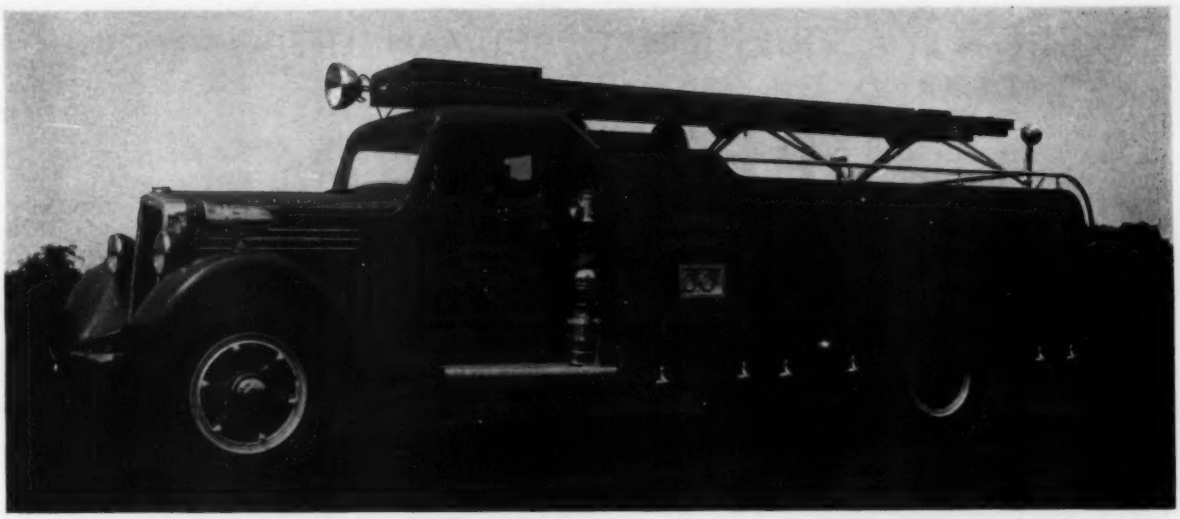
Lorenzo Smith, American-LaFrance Foamite Corp., Salt Lake City

Wisconsin

Peter Pirsch, President, Peter Pirsch & Sons Co., Kenosha
Edmund J. Arps, Duo Safety Ladder Corp., Oshkosh

Honorary Members Present at the I. A. F. C. Convention

I. H. Case, FIRE ENGINEERING, New York City
Dr. David J. Price, U. S. Department of Agriculture, Washington, D. C.
Fred Shepperd, FIRE ENGINEERING, New York City
Dr. Otto Wagner, Fire Commissioner, Elizabeth, N. J.



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Duplex Multistage Centrifugal

FIRE APPARATUS PUMP

This pump has no equal for HIGH PRESSURES and LARGE CAPACITIES at SLOW MOTOR SPEED.

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Geared Centrifugal Pump

These pumps stand alone in their class where LIGHT WEIGHT, CONVENIENCE IN OPERATION and DEPENDABLE SERVICE are desired at LOW COST.

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COMPLETE OUTFIT $21.45

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Combination Suit No. 101

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All garments Union Made AFL.

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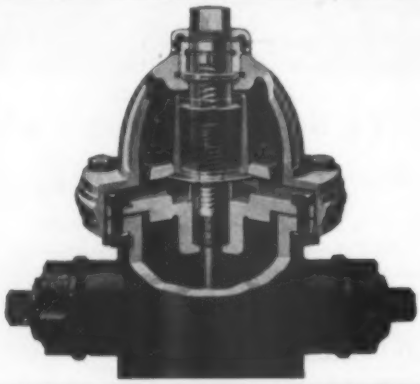
DESIGNER
CONSULTANT



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The SELF OILING feature of these hydrants is a favorite with Fire Chiefs. They like it because they know the threads cannot rust, it cannot freeze, and the operating nut will always turn easily. There's no time lost hooking up to a Mueller-Columbian.

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Mueller Co. Chattanooga, Tenn.

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are installed in

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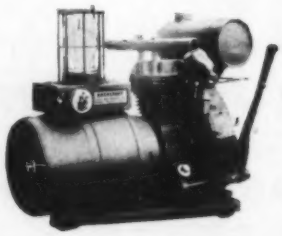
FLOODLIGHT with KATOLIGHT

portable light plants, 4 cycle, 600 watts, 60-cycle AC 110-volts. Also charge 6-volt battery from same plant. Runs electric drills, saws, etc.

Sizes 350 to 10,000 Watts



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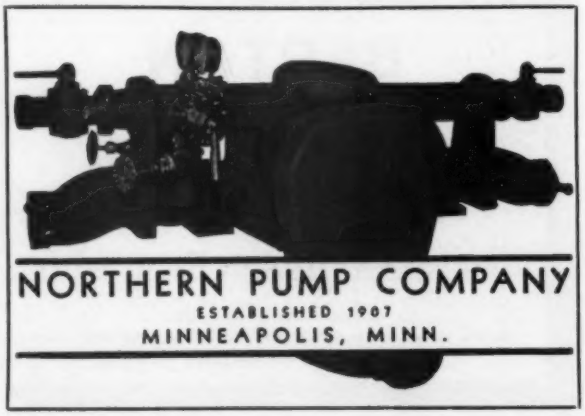
444 LAFAYETTE STREET - Established 1836 - NEW YORK



NORTHERN PUMP COMPANY
ESTABLISHED 1907
MINNEAPOLIS, MINN.

CLASSIFIED ADVERTISING

Bids Wanted, For Sale and Help Wanted, $5 per inch. Position Wanted, $2.50 per inch.

Salesman Wanted

FIRE HOSE — Are you acquainted with the Fire Chiefs in any section of New England? Here is a real job for a man who can sell Fire Hose manufactured by well established rubber manufacturing company. Advise section you know and could cover. If you cannot show results, save your time. Write fully in first letter for interview. Address Box No. 65, c/o FIRE ENGINEERING. 24 W. 40th St., New York, N. Y.

Manufacturers' Announcements

Greene Retires from American-LaFrance

John W. Greene has announced his retirement from active Management of Sales in the Southern District for the American - LaFrance - Foamite Corporation, and will devote his future to management of his personal affairs.

Mr. Greene has been actively associated with fire departments through the sale of fire fighting equipment for nearly thirty years. His association began with the company in September 1912 when he joined the sales organization of the American-LaFrance and has been actively associated since that time as Sales Representative and Branch Manager in several Districts, which include Portland, Seattle, Pittsburgh, Cleveland and Atlanta. He came to Atlanta in March, 1933, and served continuously until his announcement of his retirement.

Mr. Greene has many friends in the South and other sections of the United States who will greatly miss him.

New Facepiece for Gas Masks

New wide-vision, greater comfort, and added efficiency are advantages claimed for the new All-Vision Facepiece, by the Mine Safety Appliance, Pittsburgh, Pa. In designing the new facepiece, extensive research was conducted to determine the most favorable size and shape of lenses in relation to the size and shape of facepiece to accomplish these results: provide maximum useable lens area, restrict dead air space to the mimimum, prevent fogging of lenses, keep weight as low as possible. The U. S. Army exhalation valve that has proved highly successful has been retained. The large shatter-proof laminated lenses are set in stainless steel frames as shown in the photograph.

New Facepiece Has New Features

2-Platoon for High Point, N. C.

The City Council of High Point, N. C., has voted the two-platoon system for the Fire Department, effective from October 1. Firemen will be on duty for twelve hours, and will be off for twelve hours. Men not actively on duty must stand by for emergencies and such added duties.

Aircooled Engine Tested

A test was conducted recently in Washington, N. J., by the Hahn Motors, Inc., on a new Hahn pumper powered by an air-cooled engine. It is believed to be the first American air-cooled engine to successfully pass the National Board of Underwriters' test.

Apparatus Being Tested at Washingon, N. J.

Sign at left shows the hours of test, gallons pumped and total number of revolutions.

Officials at the Start of the Endurance Test

Reading from left to right, Earle S. Eckel, Sales Engineer, Aircooled Motor Corp., Syracuse, N. Y.; Frank Castner, Chief of Washington, N. J., Fire Department; W. E. Niniss, Fuller Manufacturing Company, Kalamazoo, Mich.; Edward Dietrich, President, Phillipsburg, N. J., Motor Club; Adam H. Hahn, Jr., Chief Engineer, Hahn Motor Inc., Hamburg, Pa.; Robert C. Groat, Mayor of Washington, N. J.; Kenneth Cregar, Chairman, Fire Commission of the Council, Washington, N. J.

Engine Ran 228 Hours

The test was started on September 14, 1939, by Mayor Groat of Washington, N. J. The pumper was equipped with the latest type two-stage centrifugal Northern Pump, having a capacity of 500 gpm at 150 pounds pressure. The Franklin Engine, Model 6-AN-400, operated about 120 continuous hours in the duration test. It ran an additional 108 hours to prove the reliability of the motor.

Convention Dates

*Nov. 15—FIRE CHIEFS' CLUB OF MASSACHUSETTS. Monthly meeting, Boston, Mass. Secretary, Chief William H. Hill, Belmont, Mass.

*Nov. 16—FIRE CHIEFS' CLUB OF RHODE ISLAND. Monthly meeting, place not decided. Secretary, A. Robert Black, 71 Wellesley Ave., N. Providence, R. I.

*Nov. 22—FIRE CHIEFS' EMERGENCY PLAN OF FAIRFIELD COUNTY. Monthly meeting at Brookfield Center, Conn. Secretary, Assistant Chief John Moehring, Stamford, Conn.

*Dec. 27—FIRE CHIEFS' EMERGENCY PLAN OF FAIRFIELD COUNTY. Monthly meeting at Nichols, Conn. Secretary, Ast. Chief John Moehring, Stamford, Conn.

*Jan., 1940—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Date and place of quarterly meeting not fixed. Secretary, Fred Trowbridge, Morristown, N. J.

*Feb. 28, 1940—FIRE CHIEFS' EMERGENCY PLAN OF FAIRFIELD COUNTY. Monthly meeting at Glenbrook, Conn. Secretary, Assist. Chief John Moehring, Stamford, Conn.

*Feb. 28, 1940—CENTRAL WESTERN (OHIO) FIREMEN'S ASSOCIATION. Bi-monthly meeting, Southern Hills, Dayton, Ohio. Secretary, Roger C. O'Donnell, Covington, Ohio.

*April, 1940—FLORIDA STATE FIREMEN'S ASSOCIATION. Annual convention, West Palm Beach. Secretary, F. C. Pfaender, Box 344, Chattahoochee, Fla.

*May, 1940—NATIONAL FIRE PROTECTION ASSOCIATION. Annual convention, Atlantic City, N. J. Secretary, Hovey T. Freeman, Providence, R. I.

May 8-10, 1940—GEORGIA STATE FIRE COLLEGE. Annual fire college, Atlanta. Director, Harry Phillips, 166 Alabama St., S.W., Atlanta, Ga.

*May 14, 1940—WEST TEXAS FIREMEN'S AND FIRE MARSHAL'S ASSOCIATION. Meets at Munday, Tex. Secretary, E. C. Fruitt, Olney, Tex.

*May 20-22, 1940—NEW YORK STATE FIRE CHIEFS' ASSOCIATION. Annual meeting, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Poughkeepsie, N. Y.

May 21-24, 1940—IOWA FIRE SCHOOL. 16th Annual Fire School, Iowa State College, Ames, Ia. Director of College, Prof. Lindon J. Murphy, University.

May 25, 1940—IOWA FIRE CHIEFS' ASSOCIATION. 12th Annual Meeting, Ames, Ia. Secretary-Treasurer, Chief L. R. Morris, Ames.

*June 10-12, 1940—MINNESOTA STATE FIRE DEPARTMENT ASSOCIATION. Meeting at Virginia, Minn. Secretary, Fred Pfaender, New Ulm, Minn.

*June 11-14, 1940—ILLINOIS FIRE COLLEGE. 16th annual fire college, Illinois Firemen's Association, University of Illinois, Champaign-Urbana, Ill. Prof. L. H. Provine, Director of School. Roy W. Alsip, Champaign-Urbana, Secretary.

June 11-13, 1940 — STATE FIREMEN'S AND FIRE MARSHALS' ASSOCIATION OF TEXAS. Convention at Houston, Tex. Secretary, Olin Culberson, Edna, Tex.

*June 11-14, 1940—ILLINOIS FIRE COLLEGE. Annual School, University of Illinois, Urbana. Director, L. H. Provine, 104 Arch. Building, University of Illinois, Urbana.

*June, 1940—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. Annual convention, Darlington, S. C. Secretary, Paul E. Welburn, Union, S. C.

*July 15-17, 1940—WISCONSIN STATE FIRE CHIEF'S ASSOCIATION. Annual meeting, Sturgenbay. Secretary, A. U. Simon, Lady Smith, Wis.

*July 16-17, 1940—MARITIME FIRE CHIEFS' ASSOCIATION. Annual convention, Campbellton, N. B. Secretary, Charles A. Cunningham, St. John, N. B.

*July, 1940—WASHINGTON STATE FIREMEN'S ASSOCIATION. Annual convention, Port Angeles, Wash. Secretary, Hugh M. Leslie, Auburn, Wash.

*Aug., 1940—CONNECTICUT STATE FIREMEN'S ASSOCIATION. Annual convention, Danbury, Conn. Secretary, D. W. Harford, South Norwalk, Conn.

*Aug. 5-6, 1940—NEW YORK STATE FIRE FIGHTERS' ASSOCIATION. Annual convention, Schenectady, N. Y. Secretary, Frank A. Emden, 1403 Mather Ave., Utica, N. Y.

*Aug. 4-5, 1940—OHIO STATE VOLUNTEER FIREMEN'S ASSOCIATION. 2nd Annual Convention, Sandy Beach, Akron, Ohio. Secretary, Chief Sid Wellock, Coventry Township.

*Aug. 16-19, 1940—FIREMEN'S ASSOCIATION, STATE OF NEW YORK. Annual convention, Dunkirk, N. Y. Secretary, Fred A. Davis, 140 Broadway, Fort Edwards, N. Y.

*Sept., 1940—NEW JERSEY STATE FIREMEN'S ASSOCIATION. Annual convention, Atlantic City, N. J. Secretary, Evan F. Benners, 24 Branford Pl., Newark, N. J.

*Sept. 3-5, 1940—MARYLAND SHORT COURSE FOR VOLUNTEER FIREMEN. Annual school at the University of Maryland, College Park, Md. Director, Chief J. W. Just, College Park, Md.

*Sept. 3-5, 1940—KENTUCKY FIREMEN'S ASSOCIATION. Meeting at Bowling Green. Secretary, V. A. Beam, 2221 W. Broadway, Louisville, Ky.

*Sept. 16-17, 1940—TEMISKAMING FIREMEN'S ASSOCIATION. Annual convention, New Liskeard, Ont. Secretary, F. E. Thompson, New Liskeard, Ont.

*Oct. 15-17, 1940—NEBRASKA STATE VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Omaha, Neb. Secretary, Louis A. Novak, Norfolk, Neb.

The notices marked with an asterisk are either appearing for the first time or have been changed since the preceding issue.

4 Die in Oil Truck Crash

Four men were killed, two houses were razed by fire, one house was badly damaged, several freight cars were burned, and Fayetteville, N. C., was severely endangered by a general fire, when a truck containing 4,000 gallons of gasoline crashed into the locomotive of a freight train at an unguarded crossing.

The gasoline trickled into sewers and soon there were popping manhole covers.

The truck driver was burned to death, the body badly charred. The locomotive engineer was found dead in the coal car back of the engine, as though he had been moving towards the water supply to extinguish his burning clothes. The train fireman leaped from his cab and was found wandering dazed and badly burned. He died at a hospital.

The truck driver had loaded his truck at the Gulf river terminal and was headed for Marion, N. C.

Chief S. W. Tillinghast put in a call for aid from Fort Bragg and a truck load of soldiers with hose responded. He said, "I shudder to think of what would have happened if there had been a brisk wind that night."

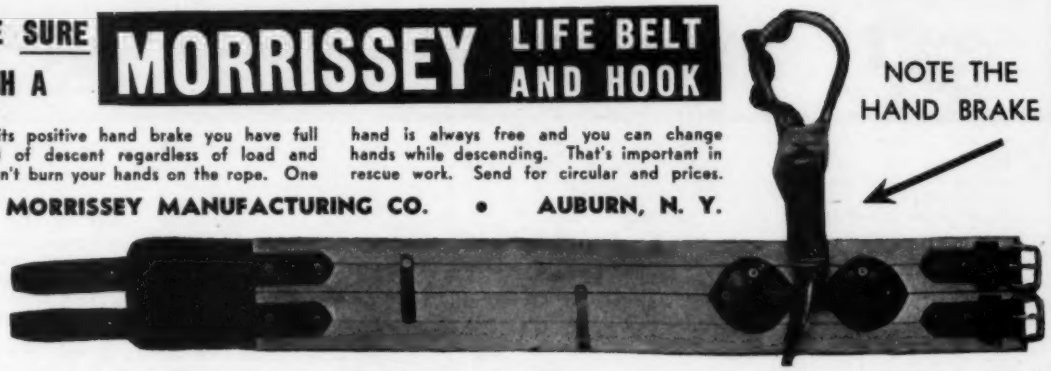
Aid was also rushed from Clinton and Raeford.

Two Views of the Fire Caused by a Collision of a Gasoline Truck and a Freight Train

YOU'RE SURE WITH A **MORRISSEY LIFE BELT AND HOOK**

With its positive hand brake you have full control of descent regardless of load and you can't burn your hands on the rope. One hand is always free and you can change hands while descending. That's important in rescue work. Send for circular and prices.

THE MORRISSEY MANUFACTURING CO. • AUBURN, N. Y.



1940 MASTER-LIGHTS

Type "WO"—the oscillating red beam that silently clears the way 500 feet ahead.

FASTER, SAFER RUNS

Write for catalog. This is only one of 70 MASTER hand and automobile searchlights and warning lights. Lights sent on approval to city departments.

CARPENTER MFG. CO.
200 SIDNEY ST., CAMBRIDGE, MASS.

INDIAN FIRE PUMPS

for
Roof Fires
Grass Fires
Room and Partition Fires
Rubbish Fires
Awning Fires
"Mopping Up"

Uses only clear water. Rust-proof tank. 50 ft. stream. Carries by hand or on the back.

Send for catalog.

D. B. SMITH & CO., 406 Main St., Utica, N. Y.

A PARTIAL LIST OF ELKHART PRODUCTS

34 years service in the fire field

•

Prompt service Quality products

•

Shut-Off Nozzles
Controlling Nozzles
Turret Pipes
Fire Department Extinguishers
Extinguisher Holders
Fire Truck Body Fittings
Hose House Equipment
All Types Hose Couplings
Sliding Poles, Railings and Canopies
Fog Nozzles
Hose Test Pumps
Threading Tools
Coupling Expanders
Pump and Hydrant Valves
Hose Racks and Cabinets
Siamese Connections
Underwriters' Industrial Extinguishers

Send for illustrated folder on the New Elkhart Mystery Nozzle.

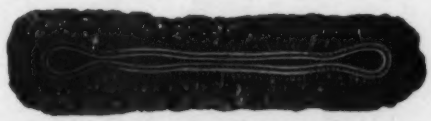
ELKHART BRASS MFG. CO.
ELKHART, INDIANA

EDDY Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience goes into their manufacture and they embody valuable and exclusive features.

Write for the Facts

EDDY VALVE CO.
Waterford, N. Y.
James B. Clow & Sons, Chicago Agents



This is the new LIGHT WEIGHT BI-LATERAL FIRE HOSE

This hose will stand 900 pounds pressure and weighs but 45 pounds to the section uncoupled.

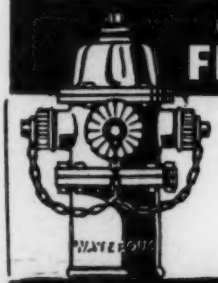
Here's the new DROP-FORGED rocker lug coupling (not cast bronze), with the swivel-protecting feature.

This coupling will stand several expansions and can be used over and over again, saving your city at least 20c to 30c per foot on future hose purchases.

When in the market, let us show you that we can give you the best service obtainable for the least money.

BI-LATERAL FIRE HOSE COMPANY
20 N. Wacker Drive Chicago, Illinois

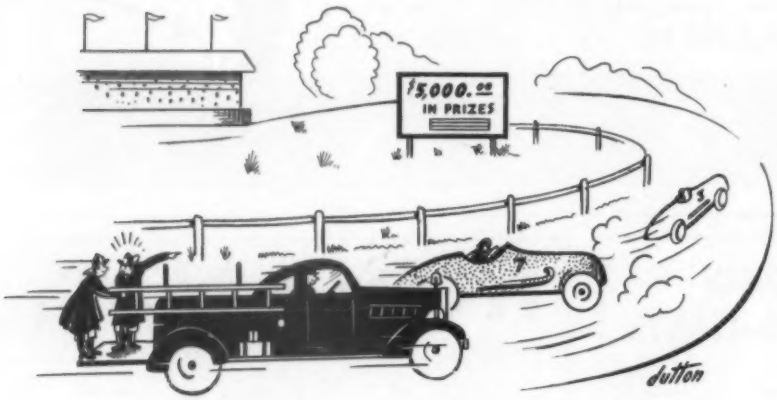
WATEROUS COMPRESSION FIRE HYDRANTS



Waterous Dependable
ESTABLISHED 1886

WATEROUS COMPANY - ST. PAUL

FALSE ALARMS



"Joe never could resist a chance for making easy money."

MATTER OF WORDS

In an outlying suburban section, two linemen were repairing wires leading to a fire alarm box. The lady living in the nearest house to the job reported to the city officials that the language that the men used was profane, not repeatable, and certainly not the kind of words expected from a city employee.

The letter was relayed to the Chief and he in turn demanded a written report from the repair men. The man in charge of the repairs gave the following report:

"Me and Bill Jenkins was on this job. I was up on the pole and accidentally let hot lead fall on Bill and it went down his neck. Then Bill called up to me, 'You really must be more careful, Harry.'"

Then there was the fellow who had to go to a tree surgeon. He got varicose veins in his wooden leg.

GOOD ANYWHERES

Up in the recreation room some of the boys were playing bridge. Excitement ran high when one drew eleven spades, and of course the conversation drifted to the best hand ever held.

"What was the best hand you ever held, Bill?"

"Well," answered Bill without much thought, "I would say the blonde I met on the beach last summer."

Elmer says his best girl friend is so dumb she thinks the Battle of Sedan was a petting party; that the Eternal Triangle is something that babies wear; and that a meadow lark is a picnic.

SIMPLE AT THAT

The fireman was studying for the promotional examination to the post of Lieutenant. All his spare time he was at his books, and several times during the week he attended a coaching course.

The night before, the lecture was on chemistry and industrial hazards. As he sat down for breakfast, he said to his wife:

"It's surprising to think how ignorant we all are. Nearly every man is a specialist in his own line, and because of that we are all narrow minded. I am surprised how little I know. Take electric light, for instance; I haven't the slightest idea how it works."

Wife smiled sweetly:

"Why, George, that's easy. You just press a switch, that's all."

A chip on the shoulder indicates there's wood higher up.

A BARGAIN

Up at the fire house the boys called him "Scotty," and considered him "one hell of a fine fellow." The burr in his voice revealed the place of his birth, and this was confirmed by a study of his frugal habits.

He was also an enthusiastic volunteer. It was this enthusiasm that caused him to swallow more than the average dose of smoke at the last fire. Upon the advice of friends, he went to visit a doctor who had acquired quite a reputation.

Scotty consulted the doctor and was advised, among other things, that he must give up drinking. Disgusted, Scotty started for the door.

"The fee for my advice," said the doctor, "is ten dollars."

"That's all right," replied the other, "I'm no' takin' your advice."

HOPED FOR ERROR

It was a very excited man who dashed into Engine 4. The desk man and the men on the floor were used to excited people, for that is part of their work.

This fellow looked around for a brief moment, dashed up to the desk, and said:

"I'm sorry to interrupt you all, but my wife has disappeared again."

The desk man looked up.

"That's too bad," he sympathized. "But why tell us firemen? Why not notify the police?"

The visitor shook his head.

"I don't dare tell the police. I told them the last time she disappeared—and they went out and found her."

Professors are fact men nobody loves.

"He kept talkin' in his sleep—somethin' about tyin' a bowline."

WHEAT SPOTLIGHT

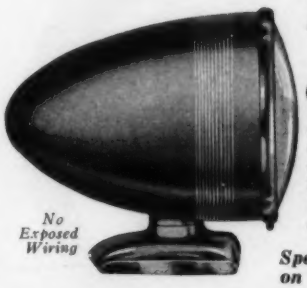
Gives *More Light*; Permits Firemen Use of Both Hands

POWERFUL: 25,000 candlepower, 2,500-foot beam. ECONOMICAL: Operating cost less than dry-cell lights. ALWAYS BRIGHT: Light does not fade. UNIVERSAL FOCUS: Throws light in any position, at any angle. EASILY RECHARGED: No taking apart; spill-proof. BURNS 1,000 HOURS without battery replacement. LIGHT: Weighs only 97 oz. Either Spotlight or Floodlight reflector.

DISTRIBUTORS WANTED—Desirable Territories Open

For Full Information Write to

KOEHLER MFG. CO. - Marlboro, Mass.



MODERNIZE YOUR APPARATUS WITH

STERLING

OSCILITE

A beautiful, powerful, rugged oscillating light with operating mechanism housed within body. Brackets for top or fender mounting.

Specify Sterling Oscilite on all New Equipment

THE STERLING SIREN FIRE ALARM CO.

Rochester, N. Y.

HEWITT-GUTTA PERCHA FIRE HOSE

A complete line, including

Wax Treated - Solid Multiple Woven

AND

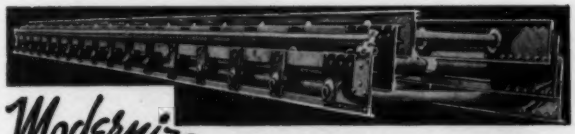
Single and Double Jacket Hose

Manufactured by

HEWITT RUBBER CORPORATION

BUFFALO, N. Y.

"Territories Available"



Modernize WITH ALUMINUM LADDERS

Their light weight permits men to get into action faster at fires. Their great strength, together with the fact that they bend rather than break suddenly under overloads, makes them extraordinarily safe. Aluminum ladders do not deteriorate in any way—upkeep bills are eliminated. When ordering new trucks or replacement ladders, specify ALUMINUM ladders.

"The FIRST Cost is the LAST Cost"

Aluminum Ladder Company

200 FIFTH AVENUE
TARENTUM, PA.

COVER'S NOD and SHAKE SMOKE MASK

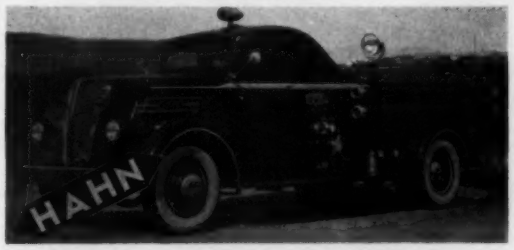
Carry It in Pocket. Slip on in a Jiffy. Positive Protection to Eyes Against Smoke and saves the lungs.

Why get sick?

Price $48 per Dozen

Upon receipt of $4.00 one will be forwarded as a sample, postpaid.

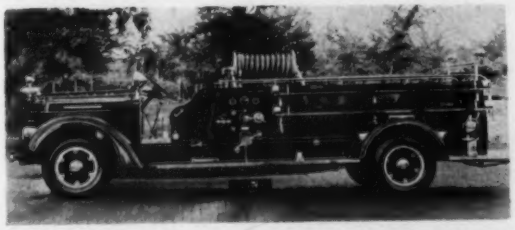
H. S. COVER
Station A, SOUTH BEND, IND.



HAHN FIRE APPARATUS

Air-Cooled or Water-Cooled
Powered Apparatus

HAHN MOTORS, INC. **HAMBURG, PA.**



Our Trucks are Powered by International

183 company-owned sales and service stations stand squarely behind International fire trucks operating in their respective territories.

NATIONAL FIRE APPARATUS CO.

Galesburg, Illinois

CHIEF! Insist on the COLT when buying Shut-Off Nozzles

. . . and get the best

The unquestioned durability of the COLT has for twenty-five years been the subject of discussion among fire fighters.

When efficiency is demanded, the COLT has been found to be the easiest to operate, and will stand the severest test of strength and use better and longer than any other nozzle.

Furnished in three sizes—¾" and 1" for chemical hose, 1½" for leaderline work, 2½" for playpipes. Plain or rubber bumper tips furnished. All shut-off nozzles guaranteed for 5 years.

Write for catalog and name of dealer nearest you or see your regular supplier.

EXCELSIOR BRASS MFG. CO.

217-219 W. Illinois Street, Chicago, Illinois

Manufacturers of Fire Hose Nozzles for 25 Years

ONE OF THE GREATEST FIRE-FIGHTING TOOLS EVER PERFECTED

KEROTEST EMERGENCY CUTTING EQUIPMENT

- EASY TO WEAR
- ABSOLUTELY RELIABLE AND SAFE
- WEIGHS 43 POUNDS
- CUTS 80 TO 90 INCHES OF 1 INCH THICK STEEL PLATE AT ONE CHARGE

When seconds count and lives and property are in the balance, this compact and completely self-contained Kerotest steel cutting unit will be found invaluable. Acclaimed by Fire Chiefs everywhere, it meets a long-felt need for a portable acetylene torch outfit that is absolutely safe and reliable at all times. Send for descriptive Bulletin.

KEROTEST MANUFACTURING COMPANY
PITTSBURGH, PA.

KEROTEST

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NOVEMBER, 1939

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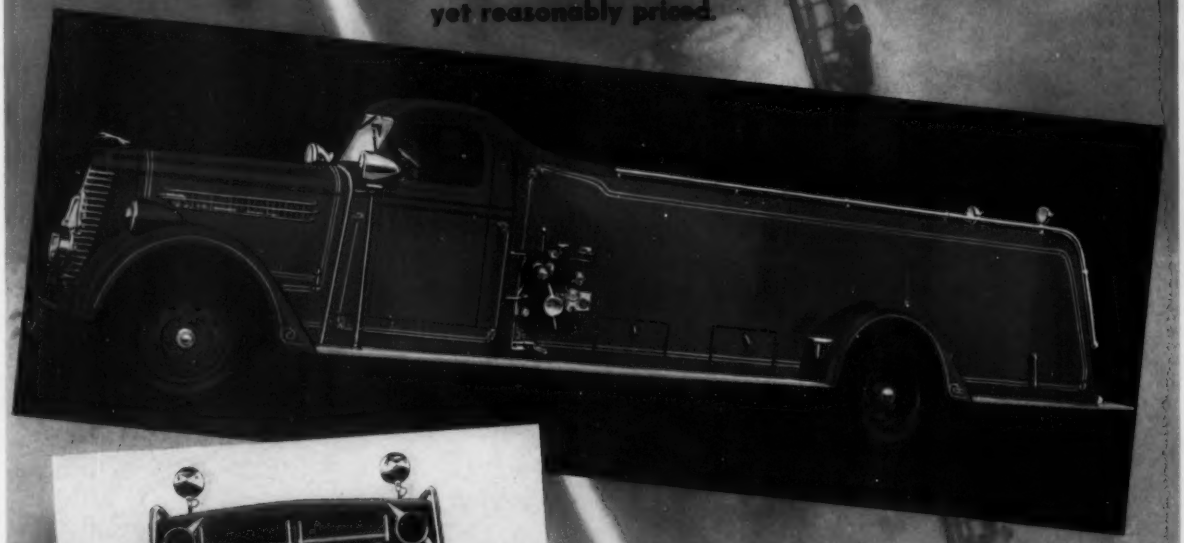
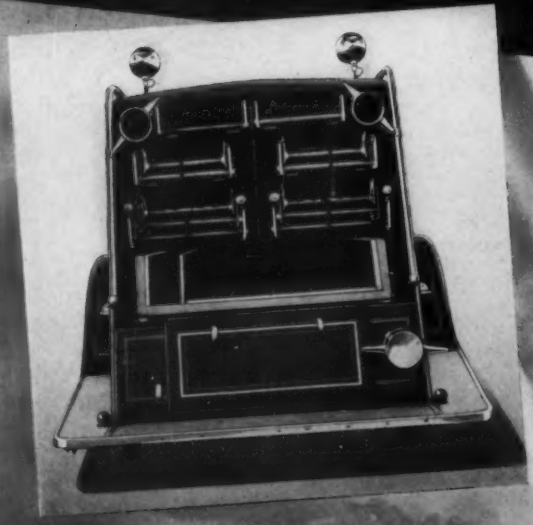
THE NEW

Pirsch Enclosed Quadruple Ladder Truck

Is offered where an enclosed quadruple is desired. Modern in design and appearance; outstanding in workmanship and performance, yet reasonably priced.





Supplied with pumps from 500 to 1500 G.P.M.

Model shown has rated capacity of 750 G.P.M., and is equipped with 200' PIRSCH All-metal ground ladders, sliding hose box with capacity of 1000' fire hose, 100 gallon water tank and the usual equipment of axes, pike poles, etc.

Ask us for further data.

PETER PIRSCH & SONS CO.
KENOSHA, WISCONSIN

Specify Eureka

MULTIPLE WOVEN FIRE HOSE

Eureka—and only Eureka Fire Hose can deliver more pressure with greater safety for longer periods—because—Eureka, and only Eureka—gives you these four advantages:

1 MULTIPLE WOVEN CONSTRUCTION

Eliminates dangerous wriggling, writhing under hydraulic pressure . . . allows no dirt or dampness to collect between plies.

2 SMOOTH-INTERIOR FILLER-PLY

Gives the rubber lining a perfectly smooth and level backing . . . no "washboarding" . . . instead, a perfectly smooth waterway assuring minimum friction loss.

3 BOMB TESTED RUBBER LININGS

Improved lap-seam . . . 4 plies of specially developed long-lived rubber . . . calendered into one homogeneous body . . . proved far superior by the Bomb Test—a scientific method of predetermining the aging characteristics of rubber goods.

4 MILDEW PROOF FABRICS

All fabrics used in Eureka Fire Hose are antiseptically treated to prevent the formation of mildew and rot. Treatment does not add weight to hose—is absolutely reliable . . . hose is easy to handle.

FOR GREATER PROTECTION TO LIVES AND PROPERTY... SPECIFY EUREKA!

Paragon 3-ply Multiple Woven Fire Hose—heavy duty—3 distinct plies—all circular woven—contains Smooth-Interior Filler-Ply—*new and improved* lap-seam, long-lived rubber lining.

EUREKA *Streamlined* FIRE HOSE

EUREKA FIRE HOSE

DIVISION OF UNITED STATES RUBBER COMPANY

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